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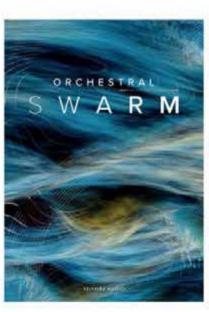**DVD** *Featuring* Video Tutorials • Workshops • Software Plug-ins • Samples

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THIS MONTH'S EXPERTS

ANDY JONES
Editor At Large Andy has an MA in Music Technology and has been writing about it for 25 years. He has launched and edited several magazines in the subject and was Editor of *MusicTech* for the last four years. Naturally, he has far too many synthesisers.

MARTIN DELANEY
Martin was one of the first UK Ableton-Certified Trainers. He's taught everyone from musicians to psychiatric patients and has written three books about Live. Martin also designed the Kenton Killamix Mini USB MIDI controller and is the Editor of Ableton Live Expert.

DAVE GALE
Dave is an award-winning orchestrator, media composer and producer, with a passion for synths and modulars in all their forms, whether software, hardware, vintage or modern. Dave is *MusicTech*'s resident Eurorack expert as well as a soundtrack composer.

MARC JB
Marc's extensive career has involved production for the likes of Lady Gaga, Pink and Rihanna and he has over 80 US and UK No. 1s to his name as part of production duo Bimbo Jones. Aside from his wide-ranging industry knowledge, Marc is also a renowned DJ.

ALEX HOLMES
Alex has been an electronic musician for many years and has a passion for beats, bass and all forms of electronic music. He's currently involved with three different dance-music projects. Alex creates our sample-filled DVD each month.

ERIN BARRA
As an Associate Professor at the University Of Berkeley, Erin is an authoritative voice in music technology education as well as an independent solo artist. Erin is heading up a new series looking at contemporary production techniques using a wide range of tech.

Welcome

Making music is an expensive pursuit. From monitors to microphones, DAWs and plug-ins: before you know it, just getting your creative space in order has made a serious dent in your bank account. But it really doesn't have to be this way – as we've highlighted before, there's a plethora of free software out there, software that, with the right application, can be used to make tracks that sound as 'pro' as anything you could record with a more expensive setup.

In Andy Jones' in-depth cover feature this month, starting on page 18, he dives head-first into this ocean of free software, highlighting the best of the best and detailing how to use it effectively to build a track – for free!

Elsewhere this issue, we've got the first in a new A-Z series, detailing some of the oft-used, key terms that you'll likely hear and need to understand in the music-making world. It'd be remiss of me not to mention the other big news this month: the long-awaited reveal of Ableton Live 10. We've been 'in the know' for some time now and our beta-armed Live guru Martin Delaney has been exploring the deluge of new features. Though the complete version is set to be released in early 2018, we've got an exclusive four-page preview of this initial beta version, starting on page 10.

Alongside all this, we've got our usual range of reviews, tutorials, tips and a complete guide to the vast high-tech world of controllers starting on page 108. We've also, very excitingly, teamed up with the best studio in the world with this issue's free Abbey Road calendar. I hope you enjoy the issue.

Andy Price Editor *andy.price@anthem-publishing.com*

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Contents

In the issue…

RECORD A TRACK FOR FREE

MusicTech shows you where to find and how to use free software to create a pro-sounding production

PLUS 50 freeware plug-ins on your DVD!

18

Your DVD

Turn the page for a full list of the contents of the *MusicTech* issue 177 DVD

50 FREE PLUG-INS

MT Reviews

TUTORIALS

Royalty-free loops and hits

VIDEO FEATURE/33MINS
UltraTap, Reelight, Deleight, Ableton QuickTips

We've got a new collection of software videos from Loop+. First up, Plugin Boutique's Joshua Casper takes a look at the many features of Eventide's unique UltraTap delay, and shows saturation tricks using Beatskillz' Reelight tape saturation plug-in. Producer Jerry Mateo uses Audiority's Deleight Multi Tap Delay to create reverb-type effects. Plus, there are two QuickTip Ableton videos from Rob Jones on creating an adjustable crossover FX Rack, and filter envelope patterns with sidechaining.
Size **579MB** *Format* **MP4**
www.loopmasters.com/loopplus

Free software!

To accompany our lead feature on making a track for free, we've scoured the internet for some of the best free plug-ins we could find. There are 50 EQs, compressors, filters, synths, drums, distortion and saturation effects, loopers, meters and more. Companies include MeldaProduction, full bucket, SocaLabs, Wave Arts, Royale Audio, BeatSkillz, Brainworx, NUSofting, BeatMaker, Auburn Sounds, TBProAudio, HoRNet Plugins, Mercuriall, NSP, discoDSP and Audio Blast.

Festival Pop, Dark Garage, Organic Techno

Sample Magic has put together a taster collection of their latest releases. From Festival Pop, you'll find crunchy synth melodies and beats. There's also moody processed vocals taken from Dark Garage 2, chord stabs and trap beats from Future Pop 2 and Future Chill 2, and synths, pads and arps from Organic Techno. Finally, there are vintage sounds from Retro Future and Vaporwave 2, and deep chords and percussion from Soulful Trap.
Size **287MB** *Format* **24bit/44.1kHz Wav** **www.samplemagic.com**

VIDEO FEATURE/20+MINS
Producing pop in Pro Tools

Although often seemingly simple on the surface, many pop records use complex layers of production in order to build a polished sound. The new course from MusicGurus sees producer and instrumentalist Paul Whalley dissect an electronic pop track in Pro Tools, and we've got two chapters for you to check out. First up, Whalley works his way through the track, highlighting the different hooks and parts that form the final mix, including vocal chops, synths and percussive tracks. Next, he shows how the guitar parts were processed, using an array of third-party plug-ins including EQ, compression, distortion, saturation, reverb and delay.
Size **444MB** *Format* **MP4** **www.musicgurus.com**

VIDEO TUTORIALS

VIDEO FEATURE/54MINS
UK Garage with MJ Cole

UK Garage has seen a massive resurgence in recent years, and MJ Cole is a veteran. In this two-part series, Point Blank Music School visit his East London studio where he discusses the genre's history, its production and his early engineering days. The second video sees him create a soulful garage track on-the-fly in 30 minutes, with sampled drum hits, loops, instruments and recorded live Rhodes from within Logic Pro.
Size **358MB** *Format* **MP4**
www.pointblanklondon.com

LOOPS/ SAMPLES

Techno Percussion and Emotional Piano Loops

We've got 50 specially made four-bar loops with live percussion chopped, warped, pitched and reversed to create unique rhythmic patterns. The audio was then passed through a signal path of EQ, heavy compression, transient shaping, tape saturation, side-chaining and reverb IRs to give a powerful, upfront and raw sound. You'll also find 50 lovely royalty-free piano melodies from Equinox Sounds.
Size **315MB** *Format* **24-bit and 16-bit/44.1kHz WAV** **www.equinoxsounds.com**

SOFTWARE

DEMO Sonarworks Reference 4
Windows, Mac OS X
The latest version of Sonarworks' acoustic-calibration software can be used to give a flat frequency response to both headphones and to your room and speakers. The new release now features zero latency, so it can be used for tracking, and profiles for 101 supported headphone models.
www.sonarworks.com

DEMO D16 Toraverb 2
Windows, Mac OS X
A new Space Modulated Reverb effect from D16, with a custom algorithmic reverb and modulated tail. New features include pre-delay with host-tempo sync, independent modulation for early and late reflections, wet-signal ducker controlled by dry signal and more.
www.d16.pl

DEMO Blue Cat's Plug'n Script 3
Windows, Mac OS X
A new version of the scripting plug-in that can create custom audio and MIDI effects or virtual instruments, with a new GUI, separate player and editor modes for optimal workflow and the ability to export scripts as independent VST plug-ins.
www.bluecataudio.com

FULL Luke Zaitlin Mind The Gap *Mac OS X*
Mind The Gap is a re-pitch delay plug-in for adding characterful echoes. Features include a two-mode filter, ping-pong setting, tempo and delay settings plus a clear GUI, and the plug-in comes in 64-bit AU format.
http://larzeitlin.github.io/software

FULL Venn Audio Free Clip
Windows, Mac OS X
An intuitive multi-algorithm soft clipper/wave shaper plug-in with a range of settings from a transparent, but harsh hard clip, to a saturated soft shape. Use dials to set the input, ceiling level and output and remove high-frequency aliasing with up to 32x oversampling.
www.vennaudio.com

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IN CASE YOU MISSED IT...

LIVE
and kicking!

It's been a long time coming – but on 2 November, Ableton finally revealed Live 10 to the world. Though not set for release until well into 2018, *MusicTech*'s Ableton expert and reviewer Martin Delaney has had his hands on the beta for some time now, getting an extensive look at a range of the new features, including four new devices, a completely redesigned sound library and a wide spectrum of improvements to the workflow…

Aside from an interface overhaul – looking cleaner, sharper and more refined – the most exciting new ingredients of Live 10 include Wavetable. This brand-new synth has a range of flexible sounds tending towards the digital realm but created with a variety of waveforms derived from analogue synths and a range of other instruments and sounds, as well as modelled analogue filters, and very flexible modulation. There are also three new effects, including Echo, which generates sounds from classic analogue and digital textures to diffused soundscapes. Drum Buss is a 'drum-sculpting' tool which adds a huge range of new drum-sound tweaks, including the ability to inject low-end. Pedal is crafted from circuit-level models of overdrive, distortion and fuzz guitar pedals and can be used in a wide variety of audio situations.

There's a whole host of other features, too, including multiple MIDI clip editing, Capture – which recalls a recently played idea and turns it into a MIDI clip – and greater Push control. For more on the new elements in Ableton Live 10, we've got an exclusive four-page preview of Live 10, starting (aptly!) on page 10.

Ableton Live 10 will be available during the first quarter of 2018, and, as with Live 9, is split into three distinct versions. Download versions will range from €79/$99/£69 for Live Intro, €349/$449/£319 GBP for Live Standard and €599/$749/£539 for Live Suite. See our Live 10 Preview over the page for more info on what each version contains, and keep an eye on www.ableton.com for more info.

OH GENOS

After trickling out details and teases, Yamaha has finally revealed the amazing-looking Genos Workstation synth. Yamaha claims that the power of the Genos provides the 'ultimate songwriting and performance keyboard' – so let's take a look at just what the Genos contains: a responsive FSX keyboard and more than 1,700 authentic DSP-instrument sounds, 550 backing tracks, a range of multipads and arpeggios, effect processors and an audio and MIDI player. The Genos' hardware and software was assembled by an international team of developers in an attempt to pool all the skills and talents of several decades of experience.

The Genos also contains a brand-new operating system, as well as 1.8GB of internal non-volatile Flash memory and is available now for £4,259. Check out uk.yamaha.com for more.

A NEW IZOTOPE... Ozone and Neutron updated

An increasing trend that we've seen in the industry of late is the integration of machine learning, and with iZotope's Ozone 8's Master Assistant, the company is following suit. iZotope's latest iteration of its widely popular mixing and mastering plug-ins can now communicate with each other. Master Assistant is designed to enable users to reach an optimal starting point for a master in seconds, using an intelligent algorithm. This inter-plug-in communication, found in the new Tonal Balance Control, is one of the most exciting elements – allowing the newly enhanced Neutron 2 to communicate with any equaliser instance of Ozone 8 in a project. Inter-plug-in communication allows the user to fix issues from one location in the mixing stage that could have a detrimental effect on the master, providing what seems to be a more visual guide for creating tonally balanced mixes.

"Mixing, and mastering especially, can often be difficult to understand," says iZotope Product Specialist Dan Gonzalez. "Getting your songs to sound like commercial releases can often be a struggle. With Tonal Balance Control, we created a new analysis tool that helps educate users on why their mixes and masters may be lacking in certain areas. And, more importantly, we offered them the tools to help fix those issues, with communication and control between the mixing and mastering plug-ins."

Ozone 8 and Neutron 2 are available now – and we'll have a full review soon. For more information, and to buy, check out www.timespace.com/izotope.

ROLI GET LUCKY with Pharrell

Well, this was a surprise… ROLI, currently at the forefront of making innovative music technology, has named producer, songwriter and bona-fide superstar Pharrell Williams as its Chief Creative Officer.

The 10-time Grammy Award-winning Pharrell, who recently conquered the airwaves with his ubiquitous single *Happy*, said that his appointment at ROLI was tied with his desire to "find ways to share the power of music with more people". Williams continues: "When I met Roland (Lamb) and ROLI, I immediately felt we were working towards exactly the same goals, and so I'm super-excited that we're kicking off this partnership."

ROLI founder Roland Lamb said that Pharrell is "not just an extraordinary musician, he embodies creativity. His ideas will take us in exciting new directions."

Aside from his new position in the company, Pharrell is set to invest and become a co-owner of ROLI. As a result of this new partnership, ROLI has released the Happy By Pharrell studiopack for its Noise app, allowing users access to the building blocks of the track's mix to shape and restructure this infectious track to their hearts' desire, and use it as fuel for new compositions. For more info, see www.roli.com.

MT MusicTech **IN-DEPTH PREVIEW**

ABLETON
Live 10 Beta

FROM €80 DOWNLOAD €99 BOXED

Live 10 has been announced! **Martin Delaney's** been living with the beta for a while and in this preliminary review, we discover how it's shaping up…

Contact **Ableton** | **www.ableton.com**

t's over five years since Ableton released Live 9, which is a long time in DAW-land. Of course, that's not the whole story – since then, we've enjoyed a stream of ongoing free updates and new features; Live 9.7 is quite a different beast from Live 9.0. You could also factor Push 2 into that timeline… oh yes, and Ableton Link, too. So no, it's not like they've been twiddling their thumbs in Berlin. But sooner or later, the big updates have to come, and Live 10 is on the way. It's not available as a final release as I'm writing this, so bear in mind that anything described here can change, and we'll be doing a full final review when the official release happens, probably after a long-ish public beta phase – but there's no way we're going to wait until then before taking a look!

Live 10 will be available in three versions, as before – Intro, Standard, and Suite. I've been running the beta since late August, so I've had time to get familiar with it (keeping it quiet has been absolute torture), and I guess what you want to know is, is it worth the wait and worth the upgrade?

Minimum system requirements

- **Mac: OS X 10.11.6, Intel Core 2 Duo processor**
- **PC: 64-bit Windows 7, 64-bit Intel or AMD multi-core processor**
- **Intel Core i5 processor or faster recommended**
- **4 GB RAM (8GB or more recommended)**
- **Approx. 3GB disk space for the basic installation (8GB recommended)**
- **5GB to 76GB disk space for additional sound content depending on version installed**

PERFECT 10

As soon as Live 10 opens, you know you're not in Live 9 any more and you're never going back. The interface, already the cleanest DAW workspace around, has been polished further, with improved clarity in all the right places. Live's 'Skins' are renamed as 'Themes' – there are only five to choose from, and they're more focused around the subdued end of the spectrum – which makes sense, because Live 9's Disco skin is popular; it looks cool and works well on a practical level. Ableton has had its own typeface designed as well, so text looks a little different. Buttons highlight when your pointer lingers over them, giving a little extra orientation assist.

Moving beyond the cosmetics, though, are the new and updated devices. There's a new synthesiser instrument called Wavetable (yeah, it's a wavetable synth). Tending towards more digital tones, it's incredibly flexible and capable of producing a wide range of sounds, as evidenced by the factory presets, which include pads, leads, guitars and percussion. Wavetable is included in the Suite alongside Live's existing

synths, Operator and Analog, between them giving Live a really comprehensive array of 'factory' synth tools.

Wavetable's interface is as approachable as a wavetable synth can get, and it'll pop open into a gorgeous-looking full-screen mode (which looks fantastic on the Push 2 display). You could get going with just the default settings, then automate waveform selection using the LFO and the built-in modulation matrix, and it gets groovy straight away.
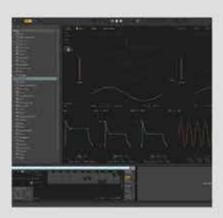
Ableton's designers have definitely been making the most of that colourful display; integration and visual feedback with Push is clearly a bit of a theme with this release. There's more to devices than instruments, though – and while there's no news regarding MIDI effects, there are a trio of new audio effects to talk about. Echo is a new delay effect, and while Live already has two delays, this one offers far more options in sound-design terms, extending from clean digital sounds to much more characterful and analogue/tape type processing, including controls that let you dial in noise and tape wobble, as well as a filter, compressor, reverb, and gate.

The visualisations of delay time and feedback in the 'Echo Tunnel' graphic also translate beautifully to the Push display. Quality-wise, in terms of sonics and features, Echo's definitely on a par with third-party delay plug-ins.

THE RAPTURE OF CAPTURE

You can hardly tell it's in there from glancing at the interface, but Capture, like Link before it, is a small thing that will change everything. Imagine the scenario – you're noodling around with your drum pads, Push, or MIDI keyboard, then you realise you just played something perfect and amazing, but the moment's gone. No, it hasn't – tap the Capture button at the top of the screen and Live will load the last phrase you played into a new MIDI clip, complete with tempo detection; it does a pretty good job of identifying the start and end of what you've played.

And in the same vein, the new Drum Buss device also looks set to give a few third-party developers sleepless nights, containing an all-in-one solution for drum track or group track processing, with compression, distortion, transient shaping, and some neat bass-management tools, too, courtesy of the fabulous 'boom' controls, with tuneable low-frequency enhancement. This device covers functions that I've typically used third-party solutions for, so for Ableton diehards, it's a good chance to keep everything in-house – it makes Live that bit more mix-ready out of the box. Of course, a device like this can be used on any type of material, not just drums, and could be especially useful for tweaking dynamically during live sets.

Finally, there's Pedal, with overdrive, distortion, and fuzz options, each modelled on specific classic guitar pedals. Again, you can use this on any sound source, and it's great on drums if you use the Dry/Wet mix control, but purely in guitar terms, this is a great addition, and I've already found that by using it with the Amp and Cabinet devices, I'm getting better guitar tones from Live than I have before. With the Sub and EQ controls, you can get anything from truly sludgy lows to sinus-exploding highs, and with a more organic vibe than the pre-existing Live drive effects.

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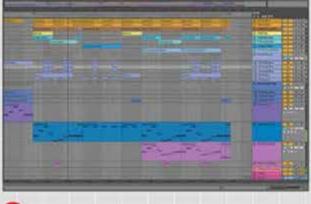www.native-instruments.com/totalnonstopcreativity

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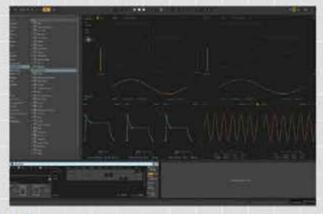
ABLETON LIVE 10 BETA OVERVIEW

01 Live gets a new synth instrument device – Wavetable (as usual with Ableton, named after the type of synthesis it represents).

02 The entire interface has been discreetly refreshed, making it even more user-friendly, and employing a new typeface – Ableton Sans.

03 Capture lets you retroactively commit the last MIDI part you played to a new clip – no need for a record button.

04 Use the new colour-coded Collections to organise your favourite material. Of course, they'll show up on Push as well…

05 New devices include the Echo delay unit; Pedal, a guitar-type stompbox, and Drum Buss, a convenient drum-management tool.

06 There are many workflow tweaks, particularly in the Arrangement View, where you can perform some editing functions directly on the timeline.

Staying at the low end, the Utility device has been updated with Bass Mono controls, so we can set a frequency below which everything in the mix or track is mono. This is useful for studio or live use, or to clean up a stereo mix such as a live recording when you don't have any separate stems. Plus, EQ Eight now reaches down to 10.0 Hz!

MAX HEADROOM
Max For Live – the tool that lets us build custom Live devices – is fully integrated into Live 10 Suite, so there's no need to keep track of separate downloads any more, and the fact that the devices load faster and use less CPU is a bonus.

Max For Live devices can now use multiple audio outputs and have MIDI-port access for MIDI data such as SysEx, which is a real 'about time' moment for users of older MIDI hardware. New Max For Live devices in Live 10 include individual DrumSynths to get you started building your own drum rack, an expression control for modifying incoming MIDI values, and an envelope follower.

These are all great additions, but there's one other new feature which I think is the absolute killer in Live 10. If I was ever going to use the expression 'game changer'… which I'm not, but Capture is a new way to record MIDI – without having to hit record. So imagine you're jamming out a new keyboard part or beat, and you suddenly knock out the perfect take. This is usually where you'd have to stop playing, hit

record, then recreate the part. But now all you have to do is click the Capture button, and Live remembers the last thing you played and drops it into a new MIDI clip, setting a tempo accordingly, and figuring out where the clip should start and stop. The full details are slightly mysterious: there's no info about how far back it goes, but it seems to work on what it detects to be a 'phrase'. This will work with Push, too; just hold down 'record' and 'new' to load the captured clip.

Having a new synth or effect device is all very well, but it's the small operational things that make the software feel comfortable, fast and creative. There are lots of workflow improvements – I'll give them more attention when we review the final release. But let's pick a few standouts. Live 10 creates automatic backups as you work, storing the last 10 in the project folder so you can go back at any point and recover an earlier version. The undo history is retained even after a project is closed and reopened, which is going to be a real godsend… Argh – the times I could've done with that in the past!

Multi-clip editing is a long-requested feature, and here it is. Select up to eight MIDI clips in either Session or Arrangement View, and you can view them overlaid on each other in the MIDI Editor, which could

which is similar to how sequencing works on Novation's Circuit. Live's Arrangement View, which has often taken a back seat to the far more sexy and entertaining Session View, gets a fair share of the attention this time round, with a series of small-but-excellent tweaks… for example, you can select a section of an arrangement clip and pull it down to the drop area to create a new track and load the devices referenced in the original; audio clips can be warped directly in the timeline without having to go to the detail view, by holding

staying relevant a bit longer. It's an interesting angle, giving accessible tools to the total newbie.

The Browser now includes a handy list of 'available packs' you haven't downloaded yet, as well as any that have updates available. This is good for me as an Ableton Trainer, because students often aren't aware how much content is available in their Ableton accounts. While you're admiring the packs in the Library, you'll also notice a touch of colour at the top. These are Live 10's Collections – a colour-coded set of shortcuts to your favourite content. Naturally, Collections and their related colours also appear on the Push display.

That's end of our Live 10 tour for now, but as I said, we'll be back with a full review once the final release appears. Overall, it's not a 'sensational' release, but if you want gimmicks for the sake of them, look elsewhere. More importantly, Live 10 has features that you'll use day to day, in the real world. Capture in particular is going to be the new default way of doing things with MIDI – and given its beta status, it's actually working very well, and every time I have to go back using Live 9, I feel a bit sulky and resentful.

Capture in particular is going to be the new default way of doing things with MIDI, and works well

be useful for comparing parts during composition. Long MIDI notes can now resume playback from the middle of the note: great if you're using long pads or drones and get sick of going back to the beginning every time you play those parts.

The Mixer has a new Split Stereo Pan mode within each track, and it's now possible to rename audio inputs and outputs, which is so useful if you've got anything more than two channels on your interface! Group tracks can now be nested within other groups, and they can also be dragged into a new project from the Browser. As well as the visual feedback from new devices such as Echo, and displaying MIDI clip notes, Push gets a new sequencer mode, showing the notes on the bottom four rows and the sequence at the top,

down shift and dragging the edge of the clip, audio content can be moved horizontally within arrangement clips, and there's a separate automation view, visible when you press 'A' on the keyboard, unfolding all tracks at once.

LIVE LIBRARY
The factory sound library has been revamped, with new instrument collections, new packs including Electric Keys, Drum Booth, and Drum Essentials, and a set of Live packs that are organised around what Ableton calls 'sonic themes': sets of sounds and parts that aren't specifically related to genres, but aligned to common classic sound sets. The idea is to give you a quick start into getting something going, but hopefully avoiding the obvious cliches, and

MT VERDICT

It's advisable to hold final judgements in reserve with a beta preview, but this is shaping up to be one of the all-time-classic Live updates, with a perfect balance of improvements and new features.

Alternatives

APPLE
Logic Pro X £199
Logic's been around forever (almost), and survives despite long periods where Apple doesn't seem to

acknowledge it at all. It sounds good, and has some great features, but lacks the immediacy and flexibility of Live. It is cheaper, but only runs on Apple hardware.

PROPELLERHEAD
Reason 10 €349
Another recently updated contender (look out for a full review next issue), Reason has charted its
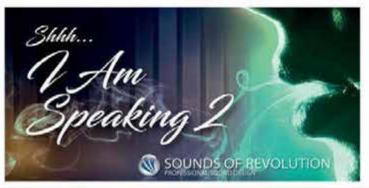
own glacial route to 'normal' DAW status, finally adding plug-in support after years of resistance – but don't worry, its characteristic Racks are still there.

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RECORD A TRACK FOR FREE

Short of cash? Just starting out in music production? You've come to the right place! Over the following 10 pages, we will show you how to produce an entire track from start to finish for no outlay, using nothing but freeware. We reveal the software you need and provide all the necessary mixing and arranging advice to create your production from scratch…

Every year in *MusicTech*, we round up the latest developments in the music-production freeware scene. Freeware comes in three forms. The first is a cut-down (but usually still very usable) version of a commercially available title that is intended as a promo device for that product. It might well be that it has a limited number of features, or that it has paid-for expansions available for it. The second type is simply a full piece of software – an instrument, a plug-in effect – that simply works, for free! These might be produced by small developers who are programming freeware, because they are dead nice people or simply trying to make a name for themselves as great programmers. In other cases, they might be made by a big company who is simply feeling generous and wants to get their name out there further. The third type of freeware, and at the heart of this very feature, is a title that was once paid for, but has now been superseded, so the developer has decided to give it away for free and spread their word.

This year, rather than just rounding up the best freeware out there, which we have done in previous years, we're going to do something a little different. We're going to be a little more hands-on and show you how to produce an entire track from start to finish, using just freeware. Along the way, we'll include advice for all aspects of the production, so there should be something for everyone over the following pages and plenty to dip in and out of. Where possible, we will be using freeware that can run on Mac and PC (and, in some cases, Linux).

TUTORIAL 1 TRACKTION 6 BASICS

01 The main File menus are at the bottom left of the main Tracktion 6 screen, so not your 'normal' drop-down menus, but everything is here including saving, importing audio and automation.

02 Instead of drop-down menus at the top of the screen, you get tabs which are for the main settings and to easily switch between projects or edits.

03 Transport controls for Play, Record, Fast Forward, Rewind and so on are bottom left. Play is assigned to the Space bar from the off.

04 By now, you'll have started noticing the pop-up equivalent of an annoying fly – the Tracktion help system. Yes, it's useful at first, but you'll soon want to hit the Help menu at the bottom left of the screen.

THE FANTASTIC FOUR
FREEWARE SYNTHS

1 Togu Audio Line NoiseMaker
Type Mac, PC, VST/AU/AAX

TAL makes some great freeware and Noisemaker (actually NoiseM4k3r) is an update to the rather great Elek7ro synth that we have often included in our synth roundups. It's a three-oscillator wavetable synth with up to six voices and a stack of great effects – reverb, delay and bitcrusher – that lift its sounds well above most. And you get a whopping 256 of those to explore, too.
tal-software.com/products/tal-noisemaker

2 Greenoak Crystal
Type Mac, PC, VST/AU

We've always included Crystal in our Best Of freeware lists and probably always will. Originally released in 2002, its developer has kept it up to date, so it runs in more modern DAW setups. It looks a little dated now, but still sounds pretty fresh and vibrant, even next to a lot of our paid-for plug-ins. There are rumours that post-nuclear war, only rats will survive. If that's true, they'll be using Crystal.
www.greenoak.com

3 Dexed
Type Mac, PC, Linux, VST/AU

The Yamaha DX7 was one of the most popular synths of the 80s. Trouble is, it was a pig to program, and the restrictions of hardware made it even harder. Dexed tries to make the process easier within software and succeeds, bringing real-time control to many parameters. There are 32 typical FM presets – chimes, fast-attack sounds and keys – making this a distinctive synth in a sea of virtual-analogue wannabes.
https://asb2m10.github.io/dexed

4 Daichi Labs Synth1
Type Mac, PC, VST/AU

Like Crystal, no Best Of free synths list is complete without Synth1. It's almost like the two of them are lovers and have to go everywhere together. But despite its dated looks – and it really is starting to show its age – it still works perfectly in our Logic-based setup, even though our newer synths seem to be looking down their noses at it, for some reason. It's based on a Nord lead – so a virtual analogue soft synth based on a VA hard synth. Still virtually great.
www.sonicacademy.com

THE HEART OF THE BEAST

The centre of your software studio is, of course, the DAW or Digital Audio Workstation. We use a very special DAW for this feature that only became freeware a couple of months ago. We reviewed Tracktion Waveform for Mac, PC and Linux in issue 176 of *MusicTech* and it scored incredibly well with us. We concluded: "It integrates within your environment – be that Mac, PC or Linux – with ease. It's a grown-up DAW for silly money."

As we went to press, we discovered that an older version of it was just becoming available for free. Tracktion 5 had been free up to that point, but now Tracktion 6 (again for Mac, PC and Linux) is available to download from www.tracktion.com/products/t6-daw. As the company says: "This is no 'Lite' version, we do not impose track limits, plug-in limitations or other such constraints commonly found in other low-cost offerings."

Tracktion 6 is the real deal and a completely free, no-hassle download. Importantly, it is also software that is only a couple of years old, so it's packed full of features and should run on your computer, whatever you use. As such then, we are using Tracktion 6 as the heart of this Produce A Track For Free feature.

We're still amazed such a fully featured package as Tracktion 6 is being given away. However, if you are happy with your DAW, then by all means use that. All the advice we'll be providing is transferable to whatever DAW you use and all of the free software should work in pretty much every DAW as long as they are VST or AU compatible (which most are).

01 Any new DAW will need to be set up to talk to the outside world by way of audio and MIDI. Go to the Settings tab to 'tell' Tracktion 6 which MIDI device you are triggering with and which audio interface you use.

02 You'll need to get Tracktion to scan for all of that freeware that you should have installed by now. Still in the Settings tab, input the locations of your plug-ins and hit scan. We have quite a lot!

03 To install a plug-in on a track, you simply drag the large + sign onto a track and Tracktion gives you options (in our case four) of where it has found plug-ins. You then simply select from the drop-down list.

04 We're ready to produce a track for free in Tracktion now, so select New Project under the Projects tab, hit the '+' tab and your project will be shown as a tab.
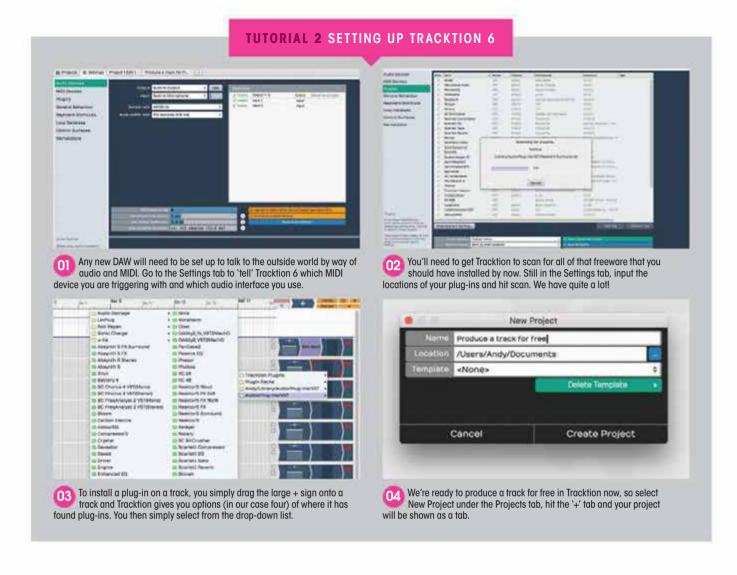
THE FANTASTIC FOUR
FREEWARE BEAT MAKERS

1 Melda Production MDrummer Small
Type Mac, PC, VST/AU/AAX
One of the best freebies on the market, MDrummer Small features a huge free download of 500MB of sounds: 30-plus drum sets, 200-plus samples, 400-plus drum-set components, 50-plus multisamples, 60-plus rhythms, 200-plus base-rhythms and 2,500-plus loops. Everything you need to make beats for free, with an intuitive interface.
www.meldaproduction.com

2 AudioSpillage MiniSpillage
Type Mac, AU
Sadly one of the few Mac-only plug-ins, but well worth its inclusion, due to the quality sounds you can get out of it from its simple interface. You get a Wood drum-modelling synth, a single-oscillator bass drum and a six-oscillator hi-hat generator. That's pretty much all your drum sounds covered, and a lot of flexibility to make them varied both as natural and synthetic sounds.
www.audiospillage.com

3 Psychic Modulation Cubix
Type PC, VST
We've had a Mac-only one, so we'll balance it out with a PC-only one. Cubix is an oldie but a goodie, designed for creating beats on the fly. You get four parts, each drum section with its own dual X-Fade sequencer for beat mixing. There's a waveshaper, amp envelope, and several oscillator shapes and tones to choose from. There's even a bassline synth to cater for all of your low-end needs, too.
www.psychicmodulation.com

4 Distocore Bazz::Murda
Type Mac, PC, VST
We wanted to include a kick-drum generator as they're all the rage at the moment, and this one has enough controls to take the beat results well beyond the kick. It's designed for the harder side of dance – think dubstep, gabber, drum 'n' bass – but there's so much going on, with three oscillators, filter and modulation effects and distortion, that you can get very flexible results for many other styles.
http://distocore.net/bazz_murda.html

THE TOOLS
Tracktion 6 is our main freeware DAW, then, and it comes with an incredible spec given its free status. It supports AU, VST and Linux plug-in formats, has unlimited audio and MIDI tracks, full automation, editing and a whole host of keyboard shortcuts. We explore many of these features in our extensive tutorials throughout the feature.

As far as instruments and effects go, we've divided our instruments up into synths, drums and 'real' (or acoustic, so piano, guitar and so on) and also listed some classic and creative effects. We've included our top freeware recommendations within each category for you to try, but in the tutorials themselves, we will stick to just one or two of each instrument or effect, to keep things relatively simple. Before you start the tutorials, we're expecting you to have downloaded the freeware that we use within them from the websites listed in each of our 'Fantastic Four' lists.

We've also included some of them on this month's cover DVD, so do check that out as well (in some instances we will not have permission, so you will have to download them online yourself).

THE TUTORIALS
We start with a basic tutorial on how to get going with Tracktion 6. Obviously, the big assumption here is that you have a computer to run it on. In terms of that computer's spec, we're talking pretty basic across Mac, PC and Linux. An Intel Core 2 Duo processor running at 2GHz should do you, with 2GB

TUTORIAL 3 RECORDING YOUR FREEWARE

01 You will have specified your main MIDI controller earlier, but you may have to also set it up 'per track' – easy enough, as you just select it from the pull-down menu. Ours is a Yamaha reface…

02 Now you need to put a freeware instrument onto that Tracktion track. Select and drag the + icon as shown. Some handy text tells you what you're doing!

03 Possibly our favourite free plug-in during this tutorial turned out to be U-He's Triple Cheese. Full of very different sounds, we stumbled upon a great, unexpected dance lead for our main hook.

04 Before we start recording, click both the Loop and Click icons near the Transport controls in the bottom right of the screen.

05 You'll need to set your loop points if you choose to loop record and there are several ways to do this. We found the easiest was to simply drag them into position, in our case across two bars.

06 Click on the BPM value just above the transport controls and this window opens at the bottom centre of the screen, so you can set your tempo. We went for a standard 120bpm but reduced it to 90…

07 … to record our bad playing. Now you hit record and play whatever you wish. We had a pretty solid lead melody recorded across the two bars (the project is on the DVD).

08 You can choose to drag your notes into place if you played them as badly as us, or click the Quantise tab for a pop-up menu to choose from. We used the 1/8th value.

of RAM – although, as ever, the more you have the better, and 4GB is recommended.

We then produce a basic song using some of the freeware plug-ins that we have rounded up and include a little detail on arranging and mixing, incorporating some of our favourite freeware effects in the latter process. Ultimately, we're trying to show you that you really can produce an entire track, from the instruments through mix effects to mastering, entirely in the box and entirely for free (bar the cost of your computer). There really is no excuse not to make great music these days, as all of the tools are out there! So, without further ado, let's make that music… for free!

TRACKTION 6 BASICS

Right, here we go, then. Head on over to www. tracktion.com/products/t6-daw to download and install Tracktion 6. We're not covering too much on installation – it's as basic as it comes, on whatever system you use. There aren't any security steps, and we had the software up and running and even ready to record audio in minutes.

Like any new DAW, Tracktion 6 might be daunting at first – certainly the first couple of screens aren't that welcoming. But as with any new DAW, if you have someone sitting at your shoulder to take you through it, you'll understand it in minutes and we aim to be that person, as we take you through the main features and detail some of the differences between this software and DAWs you may be used to.

Most software has drop-down menus at the top. Tracktion doesn't; it has pop-up menus at the bottom left. That's the first big difference. The second is that Tracktion has tabs going across the top for Settings and the current project, or 'Edit', that you're in. Now this is great, because you can quickly step between different songs as projects, or different remixes of the same song.

You'll notice the Transport controls are at the bottom right and by this time, we're pretty sure you'll also have noticed the pop-up help – which is as annoying as it was in our Tracktion Waveform review – heck, even the voiceover guy in the Tracktion tutorial video admits it's annoying, so as quickly as you can, switch it off with the pop-up tab at the very bottom left.

THE FANTASTIC FOUR
REAL OR ACOUSTIC FREEWARE INSTRUMENTS

1 Steinberg VB-1
Type Mac, PC, VST

Well, it's made by a company that knows a little bit about music software, so VB-1 must be pretty good. It's a virtual bass guitar – quite an old (and unsupported) plug-in, but you can still download it from Steinberg's website. It does pretty good bass, and has four voices of polyphony, wave-morph controls and a randomiser.

www.steinberg.net/en/support/unsupported_products/vst_classics_vol_1.html

2 Keolab Spicy Guitar
Type Mac, PC, VST/AU

There are ways of creating acoustic guitar sounds with samples, of course, but Keolab's Spicy Guitar synthesises the sound instead to produce quite varies results. It includes nine types of guitar (four folk, two classical, one flamenco, one jumbo and one gypsy) as well as two string types (nylon or steel) so you get a lot of ingredients and plenty to play with, plus a strumming engine for even more realism.

www.spicyguitar.com

3 Amplesound Ample Guitar M Lite II
Type Mac, PC, VST/AU/AAX/RTAS

And this is the sampled way to create an acoustic guitar. M Lite II is a Martin Guitar D-41 emulator and a cut-down (just under 1GB) version of Amplesound's 6GB AGM. The Lite version doesn't feature strumming, just picking, but damn good picking. There are 866 samples offering Sustain, Hammer On & Pull Off, Palm Mute, and five Popping articulations.

www.amplesound.net

4 Native Instruments Kontakt Player
Type Mac, PC, VST/AU

There are a couple of big guns who do simplified versions of their instrument collections in one free download as promo for those instruments, and they don't get much bigger than NI. This is a collection of 50 instruments over 622MB, with 'smaller weight versions' of presets from NI's Band, Synth, Urban Beats, Vintage and World libraries.
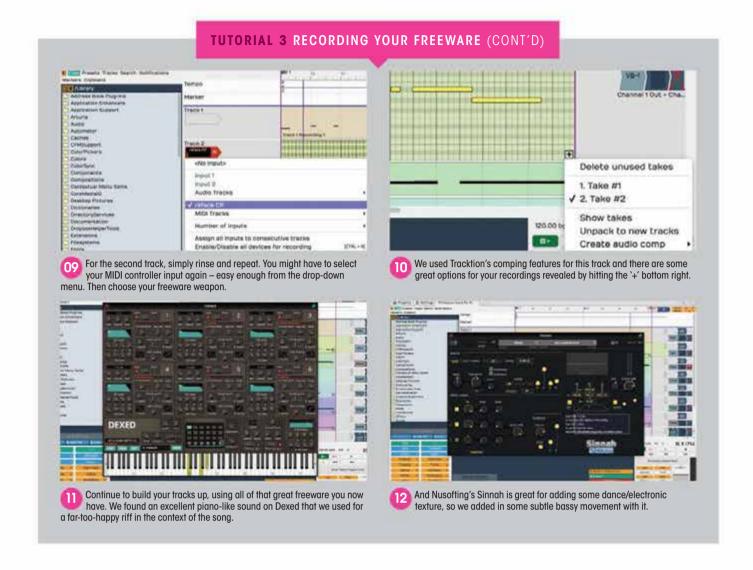
www.native-instruments.com/en/products/komplete/samplers

In our next tutorial, we run through the basics of setting up Tracktion so that you can record audio, trigger MIDI if you have a MIDI keyboard, and load in VST instruments. By this time, we'll presume you've downloaded or installed that freeware, so make sure you know where it and all of your plug-ins are on your computer so you can get Tracktion to scan for them. Now we're ready to get going… so start a New Project in Tracktion.

FREE MUSIC MAKING

In the next tutorial, we use our freeware plug-ins to produce our track, but Tracktion 6 also comes with a great set of plug-in effects – not so much instruments – so we might as well incorporate some

09 For the second track, simply rinse and repeat. You might have to select your MIDI controller input again – easy enough from the drop-down menu. Then choose your freeware weapon.

10 We used Tracktion's comping features for this track and there are some great options for your recordings revealed by hitting the '+' bottom right.

11 Continue to build your tracks up, using all of that great freeware you now have. We found an excellent piano-like sound on Dexed that we used for a far-too-happy riff in the context of the song.

12 And Nusofting's Sinnah is great for adding some dance/electronic texture, so we added in some subtle bassy movement with it.

THE FANTASTIC FOUR
FREEWARE EFFECTS

1 VladG Molot
Type Mac, PC, VST

VladG is a Russian developer with an extensive blog about audio plug-in development, loads of detail and lots to learn. And you'll need to know your compression to get the best from this beauty, but there's an extensive manual available. It's not transparent in sound but once you get it, you'll be using it on an extensive range of tasks, as it can sound easily as good as it looks.
https://vladgsound.wordpress.com

2 AudioDamage FuzzPlus 3
Type Mac, PC, VST/AU/AAX

Effects can be divided into 'subtle mix' type or more creative and in-your-face, and FuzzPus definitely falls into the latter. It's a vintage distortion plug-in, but with a very modern GUI with plenty of control – including Frequency, Feedback, Resonance, Distortion and Level – to rough up a beat, add menace to a bassline or properly distort a guitar.
http://audiodamage.com/pages/free-downloads

3 A1 StereoControl
Type Mac, PC, VST/AU/AAX/RTAS

Stereo-widening plug-ins tend to be used at the end mastering side of music production. They do have an inherent problem, in that bass frequencies need to sit central and not be widened. A1 StereoControl, however, has a Safe Bass feature that allows a predetermined set of frequencies to remain unwidened. We've made that sound simpler than it is, but this plug-in has the algorithms and width you need.
http://www.alexhilton.net/A1AUDIO

4 DDMF ColourEq
Type Mac, PC, VST/AU/RTAS

There are so many freeware effect plug-ins available, we've tried to keep this list as varied as possible, with something of every type. And everyone needs a good EQ, right? ColourEQ is a simple workhorse – one with five bands allowing you to pinpoint and shape your sound with ease. You get Frequency, Gain, Q and Mix dials per band, which certainly come in handy for our Produce A Track For Free mixing tutorials above.
https://ddmf.eu/freeware

of these during the mixing stage, too. There are a couple of quirks within Tracktion that we found as went along that we spent time sorting out – and hopefully learned enough so you won't have to faff around as much as us! Recording track-by-track, by triggering different freeware instruments, was a little hit and miss at first, as we couldn't stop triggering the same plug-in despite setting up other ones on different tracks and then arming them to record. What we found was that we had to re-specify our MIDI input – in our case a Yamaha Reface keyboard – whenever we changed track. This isn't a chore, as it's in the main drop-down menu of each track which you'll be selecting anyway, but it's worth pointing out and trying if you're not triggering the right sound (or any sound). Similarly, we couldn't trigger any sounds at first, but after saving and rebooting, it worked – so always bear that in mind, too.

What Tracktion did do very well was pick up all of our freeware that we'd installed, even putting it in different drop-down folders for when we came to load it in – all very neat and tidy.

The track we have ended up with is quite electronic and this is down to two reasons. The best guitar plug-in we found is Keolab's Spicy Guitar (see below), which only works standalone on a Mac (which we used for the tutorials). There are also many, many more synthesisers than just about any other type of freeware category. However, we did use Steinberg's excellent virtual VB-1 bass for a very good backbone sound and Distocore's Crazy Bazz::Murda for kicks and snares, discovering it has a

whole range of bass sounds, too, along the way. Be careful with it, though, as it is capable of some speaker-damaging stuff!

We found a great piano sound on Dexed in the end, so we used that rather than our planned use of Versilian Upright 1 (which is excellent, too). We then created enough parts in the song, pretty quickly, showing just how easily an entire track is to put together with freeware on a free DAW.

ARRANGING AND MIXING

Our final tutorial looks at the mix, but before we get on to that, we show how to put together a very rudimentary arrangement, simply by copying and pasting the clips we have created. We give the arrangement a gentle build of an intro, with the kick drum underpinning things.

Then we move onto the mix and Tracktion 6 is unusual in that a complete mixer is not supplied as standard. Instead, each track cleverly has volume and pan controls built into it, which you simply click on for the relevant up/down (for volume) and left/right (for pan) faders that appear when you click on the box within the track. The order of the effects and instruments placed in these track boxes is important. The instruments need to be placed after the volume controls in order for them to do anything. Ours didn't
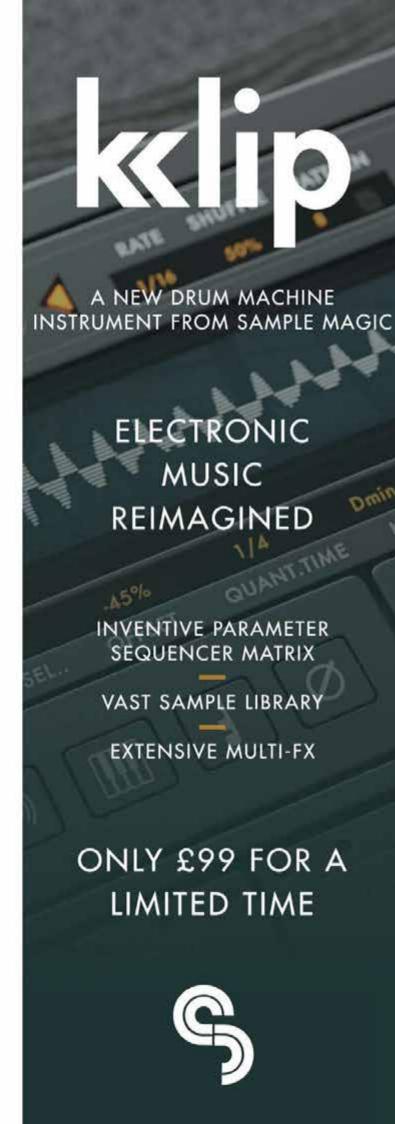
Tracktion picked up all of our freeware, putting it in different drop-down folders for when we came to load it in
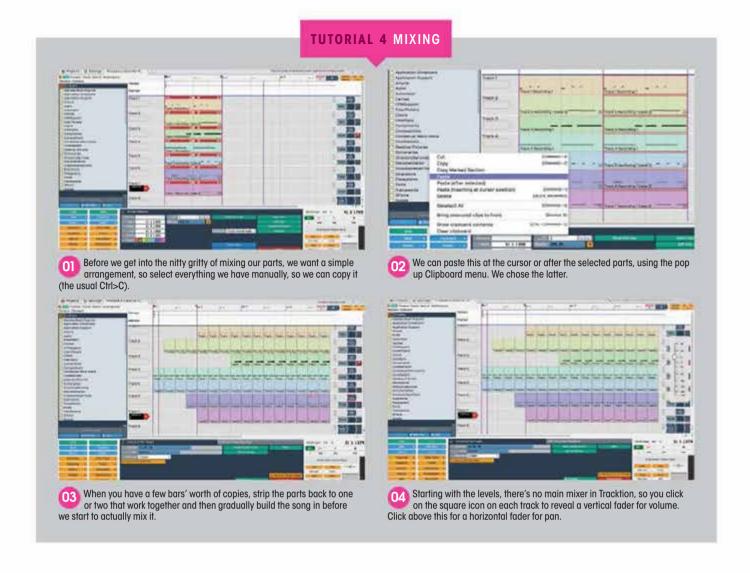
at first, as we'd placed them after. It's easy to drag all of the items in the track around simply by hovering over what you want to move and allowing the drag hand to appear.

You'll need to do some level mixing and panning before you get too far into the mix – the kick drum we chose was bold, to say the least. Panning should be done with some subtlety. The last thing you want is for everything to be panned hard left and right. Be gentle and try to keep a good spread of sounds that don't sit on top of one another.

As far as mix effects go in the tutorial, we use some from our Fantastic Four freeware effects and some from Tracktion 6's extensive collection – well, they are technically freeware plug-ins, after all, as the DAW is free! We use the effects both creatively – to often dramatically alter the sound – and more subtly. Mix effects like compression and EQ are very important, even though they might not be as in-your-face as a distortion plug-in. What they do is allow you to move elements of your mix away from each other if they are clashing. For example, rather than just increasing the volume of your kick drum to make it stand out, you should EQ out some of the elements in your mix that are clashing with it. It's all part of making your mix more three dimensional – think of it in space, depth and frequency.

There isn't the space to touch on more of the creative side of the mixing process but we have included several freeware effects that can really help you experiment with your sounds and, frankly, mess them up. We used FuzzPlus 3 on our snare sound, for example, and combined with Tracktion's automation features, you can really use it to great

01 Before we get into the nitty gritty of mixing our parts, we want a simple arrangement, so select everything we have manually, so we can copy it (the usual Ctrl>C).

02 We can paste this at the cursor or after the selected parts, using the pop up Clipboard menu. We chose the latter.

03 When you have a few bars' worth of copies, strip the parts back to one or two that work together and then gradually build the song in before we start to actually mix it.

04 Starting with the levels, there's no main mixer in Tracktion, so you click on the square icon on each track to reveal a vertical fader for volume. Click above this for a horizontal fader for pan.

THE FANTASTIC FOUR
FREEWARE UTILITIES

1 PSP VintageMeter
Type Mac, PC, VST/RTAS

PSP has a great reputation in the world of plug-ins and this analogue-style VU meter is the only freebie they do, so is well worth grabbing, especially if you don't trust your DAW's meters.

http://pspaudioware.com/free_psp_plug-ins

2 Blue Cat FreqAnalyst 2
Type Mac, PC, VST/RTAS/AU

Blue Cat Audio does loads of great plug-ins and this freeware analyser allows real-time monitoring of your sonic frequencies. You can even customise the look of it, if you fancy.

www.bluecataudio.com/Products/Product_FreqAnalyst

3 Voxengo Stereo Touch
Type Mac, PC, VST/AU/AAX

Proper mono-to-stereo requires a lot of thought, but this little freebie does it all for you, using a mid/side coding technique. It even pushes into surround territory.

www.voxengo.com/product/stereotouch

4 Sonalksis FreeG
Type Mac, PC, VST

You might not have realised it, but you need a bigger master fader – so it's a good job those folk at Sonalksis have realised this is the case, and come up with this for super-accurate monitoring within your chosen DAW.

www.sonalksis.com/freeg.html

effect, gradually opening up its frequency and resonance dials for some sonic drama.

Obviously, the arrangement now needs fleshing out as, for the purposes of this tutorial, we have kept it very basic (and short) simply to show you how parts can be mixed together and the role of the freeware effects in this process. We should also mention some mastering possibilities too, where you end up with a more professional and balanced mix and, guess what, there are plenty of freeware effects to help us do this too, including a couple in our Fantastic Four lists that we didn't use in the main tutorial. A1 Stereo Control can be used to add width to individual tracks and the entire mix. LVC Audio ClipShifter 2 offers brickwall limiting, that can used at the end of the mastering process.

Other plug-ins out there specifically for mastering include Baxter EQ (PC only, from varietyofsound.wordpress.com/downloads) which is designed to subtly accentuate certain frequencies in your mix and VladG Sound Limiter No.6 (Mac and PC, from https://vladgsound.wordpress.com) is another brickwall and soft limiter for the end stage of the mastering process.

Finally, there are loads of utility freeware plug-ins and we've listed four good ones in the boxout to the left of this page.
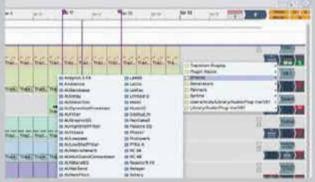
FINAL THOUGHTS

And there you have it. There's a free plug-in for every part of the music production process – and a whole lot more. We hope we've opened your eyes up to the freeware world if it's not an area you'd previously considered for your music production, and given you another angle on music making with Tracktion. Version 6 has to be the finest piece of freeware around, so you owe it to yourself to at least give that a go. Enjoy the software, enjoy the plug-ins… and most of all, enjoy that bank balance.

TUTORIAL 4 MIXING (CONT'D)

05 In order to have your faders actually do anything, make sure they are placed in the right place in the channel chain, as in at the right-hand side, as in before the instrument.

06 We reduced both kick and snare and tweaked a few other levels. Then it's time to look at the pan positions and listen out for anything that is sitting on top of something else and move it subtly away.

07 Once you are happy with your levels and pan positions, it's time to get those freeware effects out of your virtual cupboard. Again, drag the + icon into your chosen track as you did with the instruments.

08 We'll start with some EQ on the lead and what better than a Pultec emulation? We found the lead was starting to get lost in the mix, nothing that a little boost at 300Hz didn't solve to give it more body.

09 With the kick, we brought our other more workhorse freeware in, ColourEQ. This allows us to hone in on specific parts of the frequency, to cut a little flab and boost at around 150Hz.

10 Of course, we can use Tracktion 6's effects – technically, they are freeware – so turn to the software's compressor to tighten up the kick sound. Experiment with the attack, reducing it to 25ms.

11 Identify parts of the mix that might clash in terms of frequency. We found that the VB-1 bass part was sitting just a little too closely to the kick, so we solo'd both tracks and EQd the bass away from it.

12 Just time to touch on some of the more creative effects, such as FuzzPlus 3. We put it on the snare which we'd never been happy with and recorded some automation of the Freq dial, with excellent results.

FIRST OUR WORLD WAS A DISC. THEN, A SPHERE. TURNS OUT, IT'S TWO DISCS!

THE POWER OF MUSIC!

THE A-Z

PART 1

OF MUSIC MAKING

Sponsored by **Gear4Music**

In the often-confusing world of music technology, many terms, expressions and reference points can be bandied about with an expectation that everyone involved in music making automatically understands what is meant. Are you feeling a little perplexed? Help is at hand… **Marc JB's** new A-Z goes through some of the most vital (and just generally good to know) real-world terms alphabetically and in plain language – so let's start with A…

ADSR

Stands for Attack, Decay, Sustain, Release – this shapes the amplitude envelope of a sound – how its volume is set to 'behave' over time. Attack: when you first press the key, this adjusts the time it takes the sound to go from silent to the loudest level. Use fast attack for aggressive sounds, slow attack for smooth pads. Decay: the time it takes the sound to go from its loudest point to the level set by the sustain level. Sustain: the level of the sound when you hold a note. Release: the time it takes a note to return to silence after the key is released. To make a 'pluck', set a fast attack, short decay, zero sustain and short release. For a 'pad', set a long attack, long decay, 70% sustain and a long release. ADSR can also be applied to your filter cutoff, for great results.

2

Acoustic Damping

1

After a sound comes out of your speakers, it bounces around the room. If the room has parallel walls, standing waves build up, making the sound muddy and horrible. Using acoustic dampening panels can help to tame these troublesome waves. Bass traps in the front corners help soak up that low-end energy; midrange traps placed to the side of you stop 'flutter' and help to keep the sound solid and tight. Finally, full-range traps on the back wall help keep the whole room under control. Egg boxes are best for keeping eggs in!

AIFF

3

Stands for Audio Interchange File Format. One of the most popular uncompressed audio file formats, as used on Macs.

Amplitude

4

The volume of an audio wave.

Analogue

5

Sounds made using old-school electronics, including the transistors, valves and resistors found in 'vintage' gear. These electrical components can be slightly unpredictable and noisy, giving the resulting sound a warm tone with subtle distortion characteristics. These often sound great, but due to ageing of components and their design, can behave erratically. The Roland SH-101 synth (see last issue's Rewind feature for more info) from the early 1980s can go out of tune depending on how warm it is, for example. There are many great digital emulations of analogue equipment available, such as the SSL 4000 Series console bundle from UAD.

A&R

6

This stands for artists and repertoire – and these are the guys you impress at a record label or music-publishing company in order to ensure your fabulous, unique tunes are signed up and distributed to a worldwide audience. The A&R people are responsible for talent scouting and artistic development of songwriters and music artists. Despite the ever-growing number of artists who self-promote and release via the web, impressing an A&R person is still the best route into the rarefied world of the major labels.

B

1 Bandwidth

The difference between the lowest and highest frequencies.

Bitcrusher

A lo-fi (low fidelity) digital effect producing distortion by reducing the bit resolution of the audio data. CD quality is 16-bit, whereas some old-school drum machines worked at 12-bit, imparting a distorted edge which sounds crunchy and can be a great asset to your mixes.

3

2 Bass

Low frequencies. Human hearing goes down to about 20Hz. Frequencies below 20Hz can actually be felt in the body. 20 to 60Hz is classed as 'sub' bass; bass is between 60 and 250Hz. Watch out for unwanted bass in your mixes – for example, microphone rumble or wind noise on a vocal take. In this case, use a 'high pass filter' to remove these rogue bass frequencies. Make sure bass frequencies don't compete – for example, your kick and your bass synth may be occupying the same sonic space in a mix. Employing side-chaining works well in this case, to keep your sound tight and powerful.

4 Bounce

To record the audio signal through the entire signal path onto a new track. The 'bounce' is also a term typically used to refer to the final .wav or .mp3 file of the project.

BPM

Beats per minute. Typical values for respective electronic-music genres range from hip-hop at 60 to 100bpm; house, which rises to 124 to 130bpm; going all the way up to trap, which is usually around 140 to 150bpm. People react and dance in a different way, depending on the bpm. Up to 127bpm is good for expressive dancing, above 129bpm and a crowd will be bouncing on their toes. At 140bpm-plus, many people dance to the music in half time.

5

1 Channel

An audio channel is what your audio passes through from source to output: one channel for mono and two for stereo. In modern DAWs, a channel will have many features to help you manipulate your audio, such as EQ, inserts, sends and a volume fader.

4 Compression

Compression makes your audio louder by reducing the level of loud sections and then increasing the overall volume. This means the loud parts are still loud, but now the quiet parts are louder. The threshold is the point at which the signal becomes affected by gain reduction. The ratio sets how much the additional level will be affected. A 2:1 ratio means that a gain increase of two will be reduced down to one. Low ratios are subtle and high ratios are more aggressive. An infinite ratio is called limiting, and caps the level of the audio signal. Attack adjusts the time it takes for the compression to take place and release adjusts the time it takes for the compression to end. Make-up gain makes the overall level of the compressed signal louder, to compensate for the reduction on audio peaks.

2 Clipping

Distortion which occurs when input levels are too high. Make sure you have some headroom on your master channel to avoid the audio clipping through your DAW. If your project is too hot, select all your audio channels, link them and and lower the volume down until you are getting about -4dB maximum peak levels on your master fader.

5 Controller

Devices to input data into your DAW – keyboards, drum pads, sustain pedals, expression pedals and MIDI control surfaces.

3 Collaboration

One of the best ways of getting ahead in the music industry. Every time you work with a collaborator, you soak up their ideas, ways of working (and contacts!). This is a great way to increase your network and increase potential opportunities to further your career. A great way to collaborate with songwriters is with equal splits in the music – too many people get upset about splits. Collaboration is not only about songwriting; you could also collaborate with a magazine, TV station, clothes retailer or even the local council… Just find a win-win situation. The bigger the network you connect with, the bigger your success!

6 Criticism

There are three main types of music-making criticism. Firstly, there is constructive criticism: given sensitively – but honestly – with ideas on how to move forward. The second and most common type is given by people who feel better by putting others down around them. Best to ignore this and these types of people. The third type is self criticism. Don't derail your aspirations by being under-confident… all the greats had to learn their craft through trial and error.

D

1 DAW

Digital Audio Workstation. A software- or sometimes hardware-based system used to record, edit, mix and playback digital audio. Most typically, this means Cubase, Logic, Ableton Live – that sort of thing.

2 Decibel (dB)

The unit for measurement of loudness. In a DAW, 0dB is maximum level and negative values are quieter. Decibels are logarithmic in nature, so every 3dB extra or less is a doubling or halving of amplitude. For example, a 9dB increase will be (2 x 2 x 2=8) times louder.

3 De-essing

De-essing is the gain reduction of sibilance, most commonly used on vocals. Some singers produce strong sibilant noises, such as 'sh', 'ch', 't' and 's'. If a piece of audio has had the treble increased, these sounds can become dominating and hurt your precious ears. De-essing applies selective compression to the bandwidth of the sibilance, typically around and above 4000Hz. Too much de-essing makes the singer sound as though they are singing into a pillow. A handy tip is to have the level of the vocal sibilance just above the level of your hi-hats for a balanced mix.

4 Delay

Delay is a time-based effect used to create an echo. Echoes can be synced with the bpm of a project: a 1/4 delay will create an echo on the beats. There are recognisable styles of delay: a mono delay creates an echo in the middle of the stereo field; a ping-pong delay creates an echo that alternates between the left and right sides. Multi-tap creates separate, definable echoes which sound like early reflections on a reverb. Simple digital reverb is made up of delays feeding into more delays. For lush delays, including tape-based dub effects, try SoundToys' EchoBoy plug-in.

DJ

DJs and music producers make great collaborators. DJs know their sounds and have developed an ear for what works on the dancefloor. Find yourself a DJ, create beats they'd be proud to play out and watch a dancefloor go crazy. Instant gratification, free drinks and no queues to get in!

5 Distortion

When a component is unable to cope with the maximum amplitude, the waveform is changed, resulting in distortion. Distortion is a useful audio effect, however, and can be created using a variety of means: by running a high signal through a valve amplifier, recording a hot signal to tape or even driving speakers too hard. Harmonics are added to this signal that can give a sound a velvet warmth and help it cut through a mix. With monitor speakers, it's important to have almost no distortion to be able to hear your music accurately. DAWs have a variety of distortion-based effects built in: for example, Cubase's Quadrafuzz V2 is useful for selective high-end distortion that will help sounds shine through the mix.

7 Drums

Making beats is fun. The main components of a drum kit are: Kick, Snare/Clap, Hats, Crash, Percussion. Some of the original electronic drum machines are now legendary. The Roland TR-808 and TR-909 were the pioneering sounds of hip-hop and trap beats. If you want good drum loops, try an extensive sample-library repository, such as **www.loopmasters.com.**

8 Dynamic Range

The difference between the loudest and quietest volume in an audio signal. A wider dynamic range can be more natural sounding, a smaller dynamic range can sound compressed and squeezed.

Ears

Your precious lugholes. Human hearing range is commonly 20 to 20,000Hz, with 2,000 to 5,000Hz being the most sensitive area. The difference between the quietest to the loudest sounds you can hear is about 120dB, a range of one million in amplitude. When listening to very quiet sounds, the ear drum vibrates the width of a single molecule. If listening loud, do it for short periods of time, to prevent ear fatigue and long-term damage. Remember: your ears are a conduit to the world of music and you only get one (non returnable!) pair. Look after them.

1

2 EQ

Equalisation (EQ) shapes the sound of the audio signal by adding or subtracting gain to various frequencies. There there are a few types of EQ. In a Graphic Equaliser, the input signal is sent to a bank of filters and each filter has its own frequency band and gain. Parametric is a sweepable EQ for broad and precision adjustments. Here are some general EQ guidelines:

30Hz sub bass, a rumble in your chest

60Hz the main energy of the kick and low bass notes

125Hz bass warmth, lowest frequency of male voices

250Hz muddiness, lowest frequency of female voices

500Hz low midrange

1kHz midrange

2kHz high midrange

4kHz harsh frequencies and bite

8kHz air and brightness

16kHz sparkles and shimmer.

Fader

1 A volume control, usually linear in operation.

Filter

2 Filtering is an EQ process. High pass allows higher frequencies to pass, so is good for getting rid of unwanted bass. Low pass allows frequencies below to pass, so is great for filtering out unwanted higher frequencies. Try putting synths through a low-pass filter and automating the frequency from about 200Hz to 20kHz for epic builds in your track.
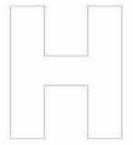
Frequency

3 Frequency is measured in Hz – cycles per second. In a sound, the fundamental frequency is the lowest component in the spectrum, and harmonics are multiples of the fundamental frequency. Frequency is logarithmic in nature, so double or halve the frequency to go up or down an octave. A Sine wave has only one fundamental frequency, but a Square wave is made up of many harmonics. These harmonics are actually Sine waves, too, so a Square wave can be made up from a combination of Sine waves. This can be worked out using Fourier analysis, which powers many of your plug-ins.

Gate

1 A noise gate allows signal to pass through when it goes over or under a certain loudness threshold. A gate can be used to get rid of background noise and also to tighten up drums.

Harmony

A combination of notes sounded at the same time, creating a pleasing effect. Simplify your harmonies to get clean and impactful sounds. If you can't help but play big chords, imagine gaffer-taping your fingers together so you can only play one note at a time. If you're making tracks for a club-type environment, then all the subtleties of complex production can be lost as you can only hear a handful of elements over the speakers. Simple and impactful production works best in this context. On synths, try using a root note and a minor or major 3rd one octave up, this sounds open and great in the mix.

1

Headroom

2 Headroom is the gap in your mix between the loudest peaks of your recorded audio and the point at which distortion starts. On digital gear, the maximum point is 0dB. It's good practice to have a safety zone between your loudest peaks and the limit of the gear to handle those sounds. On a multitrack DAW project, individual track levels may look safe, but when they're summed together, they may be too hot and begin overloading your master channel – causing clipping. Back everything off until you have at least 4dB of headroom. When submitting an unmastered mix to a mastering engineer, mix down with about 4dB of headroom.

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POP SCENE

From *Moulin Rouge* to *Kick-Ass* via the Spice Girls and Sugababes, **Andy Bradfield** is just as comfortable producing film soundtracks as he is pop records, such as his latest for TV-star-turned-powerhouse-vocalist Sheridan Smith…

W ith a career that began in earnest at the renowned Olympic studios, Andy Bradfield has turned his hand to high-profile film and pop music with seemingly effortless dexterity; from the toweringly successful *Moulin Rouge* soundtrack to his latest project, working with TV's Sheridan Smith on her debut record, Bradfield has seen the music production world evolve over the last few decades. We find out more…

MusicTech How did you first become interested in music and how did that lead to a career in the industry?

Andy Bradfield "I started by learning keyboards when I was at school, but I think I always had a bit of a fascination for sound, which led me to recording. My mum and dad saw this and bought me a cassette recorder when I was about 10 – and I was hooked from then on. When I was 14, I went on a recording course at a studio in Essex called Diploma Studios. It was a local studio, but the course was very well thought out and covered all aspects of recording. I did a second course and work experience at the studio, and eventually wrote many letters to studios applying for jobs, but got only a handful of replies. But I did get an interview at Red Bus studios – I worked there for five months when the Townhouse wrote to me that they were conducting interviews for Olympic, I then got offered a job at the revamped studio."

MT You started your career in this iconic studio – what are your memories from working at these incredible places?

AB "How much you absorb and learn, really. It wasn't training in the sense of going on a course, you were kind of thrown in with engineers and were expected to know the studio… Understanding the patch bay and where everything was and fetching mics and headphones… and, of course, the dreaded recalls, as all were SSL studios, but as anyone who has done that will know: the patching and outboard was all done by hand! A lot of what we did was still analogue tape when I started – DAT and digital tape was starting to appear, as was the DAW in its very early form, I found these advancements fascinating.

"Pretty soon, there were huge changes and a move to DAW-based production, I was a reasonably early adopter of Pro Tools, and starting using it in the 90s when i was first a freelance engineer. You could see how it was going to eventually take over, but it took time for the computers and the tech to get fast enough to replace some of the amazing kit that was in use – so, for a long time, things stayed hybrid. They had to, especially mixing, as the big desks still had the sound and headroom, which early DAWs could not compete with or run enough processing to keep up at that time (or tracks, for that matter)."

MT What gear and tech does your current studio contain?

AB "The setup is based around an Avid Icon D-Command 24-fader control surface, which is now attached to a HDX2 system (Formerly a TDM system) and an eight-core UAD Card, plus a bunch of outboard. The D-Command has the XMON – which is an analogue monitor section to control the sources and speakers, plus the headphones etc, and it works really well, I just wish it had more inputs! Pro Tools HD 12 is great for me with the control surface, and I can handle very large sessions with relative ease. I wouldn't want to mix on a console now – the sessions are too big."

MT What DAW, software and plug-ins do you use most often?

AB "Pro Tools HD 12 and sometimes Logic for programming. Superior Drummer 3 is really fab, I'm a big user of both Native Instruments' Komplete 11 and Arturia's Complete Collection, and I love Ivory II. I get deep into Omnisphere for when I need to do any synth programming."

MT What physical equipment do you use the most and what are your favourites?

AB "Quite a wide selection, here's a few cherry-picked faves: LA-2A, Rupert Neve Designs 5024 mic pre, Apogee Symphony I/O, Bricasti M7 Reverb, Sansamp (Rack One), TLA-100, 1176, Bryston Amp – NS10s and Krk9000Bs. I've recently started using a range of Aston microphones, the Spirit is fab on overheads, and as an 'S' mic for MS on acoustics, but I also use the Spirit for vocals for some people… I've just finished Sheridan Smith's record, we used the Spirit

Images © RecordProduction.com

"Practice, practice, practice! And listen. People don't do that enough, they just 'do'"

on her vocal, and we used another pair for drum overheads. We then used the Spirits and the smaller Starlights as an overhead pair on the brass section, and also when we did strings."

MT How do you approach mixing projects, and how creatively involved do you get with the artists/composers?
AB "I usually start by discussing what the band, artist, label or composer want to achieve and, more importantly, if there are any specific problems that they need to overcome. It might sound odd, but sometimes there is something that did not go to plan, and is a problem – so it's better to know that before I start, and hopefully find a solution during the mixing process. Having good communication is very important, as it's hard sometimes to assume what people need or want from something. I will usually meet and discuss how to go about it, or Skype – and what I think the best way to tackle it is. Usually, the artist or producer or composer is very involved – and I try and get the best out of what I am given to take it to a great place and then refine it, as there are always details that people want to get involved in."

MT How do film projects differ from music-artist projects?
AB "With films, you have to learn you are a small cog in a very big wheel. You have to learn to turn things around quite quickly and also you end up ingesting and outputting a ton of material in a *very* short time. It's often quite time-sensitive, as it's the last piece of the process on most projects."

MT How have things changed in the production world during your career?
AB "Oh, massively, I don't even know where to start – everything has changed! I mean literally every aspect has changed: tape and desks are gone (mostly). DAWs were non-existent when I started, and now have really taken off. When Pro Tools became more stable and the track count increased, it became a viable option to record directly. Not to mention that, when we did *Moulin Rouge* back in 2000, we made a decision to not to use any tape at all, simply because of the amount of changes and edits that were taking place

all the time during the project. This was only really possible because I had an expanded Pro Tools TDM system and you could have seven 888/24s, which gave 56 inputs and outputs to the desk!

"What I want to avoid is having to think too much. I just want to get on with it and get creative, so they get the technical aspects out of the way at the start."

MT What advice would you give to readers embarking on a similar career?
AB: "Practice, practice, practice! Seriously. And listen. People don't do that enough, they just 'do'. Tape did do one good thing; it forced you to stop listening, as you had to rewind to the front! That actually wasn't always a bad thing. Take the time to listen to records you like and try to put it into practice. Don't believe everything everyone tells you – just because someone says they're doing x, y or z, doesn't meant they do it all the time on everything. Trust your ears, get good monitors that you understand and learn to listen quietly. There is no magic bullet: recording and mixing isn't an exact science, but you can learn and improve. Learn from your mistakes. From experience, you understand your mistakes and learn to do it better next time."

MT Is there anything you want or need, gear or software wise?
AB "Gear is great. But it can become excessive and you can convince yourself you need x or y to get the job done. I think possibly the most important thing for me is the computer… It's now the centre of the studio. Perhaps the faders – I still love having real faders.

"I think now is possibly one of the best times to be making music, the technology finally is making things easier. I felt for a long time when I started mixing that the technology was always fighting me, and to some degree it was. Tape sync, noise, headroom, running out of channels on the board, running out of DSP! The list goes on and on. But it seems much better now we use the DAW to get the work done, and that stuff happens far less now, and I can get on with what I need to do to get the job done and enjoy it! At the end of the day, that's what this is all about." MT

MT INTERVIEW

BLINDED ME WITH SOUND

With a new book documenting his incredible life, **Thomas Dolby** has added 'author' to his CV alongside 'hitmaker', 'producer', 'keys player to the stars', 'Silicon Valley entrepreneur' and 'Professor' (both real and imaginary). *MusicTech* meets Dolby to talk tech, and about his studio which is, where else, based on a lifeboat…

Words **Andy Jones**

Thomas Dolby's book *The Speed Of Sound: Breaking The Barriers Between Music And Technology* (to give it its full title) documents his life from starting out in music through to his current role of Homewood Professor Of The Arts at Johns Hopkins University in Baltimore in the US. What happens between is an astonishing rollercoaster of several lifetimes' worth of adventure. Many, for example, would have been happy enough with just releasing some critically acclaimed albums and scoring a smattering of massive pop hits (*She Blinded Me With Science* and *Hyperactive*), but not Dolby. He went on to found his own Silicon Valley enterprise, supplied a large percentage of the world's mobile phones with a synthesiser that could play polyphonic ringtones, became the Musical Director for the influential TED conferences and married a Hollywood actress. And let's not forget, he played keyboards for Bowie at Live Aid; produced several acts, including Prefab Sprout; had several run-ins with Michael Jackson and even played with Stevie Wonder, Herbie Hancock and Howard Jones at the Grammy Awards. After we suggest it's like the music-production life of Forrest Gump, Dolby laughs and admits it can read a little like that.

However, we've got the rather more serious business of studios to talk to Dolby about today, but of course, knowing Dolby, it's not quite that straightforward. His studio is based in a 1930s lifeboat called the Nutmeg Of Consolation, which sits in his back garden with glorious views of the East Anglian coastline. It's solar- and wind-powered – apt, as it's the name of one of Dolby's early hits – and it's as streamlined as you like, a far cry from his early studio setups that were crammed full of analogue synths and an ultra-expensive Fairlight. Indeed, that move of technology, also a theme running through Dolby's book in more than one sense, seems an appropriate way for us to begin our chat…

MusicTech We've witnessed a huge shift in music-production technology since you started in the early 80s. Are you surprised about just how quickly things have moved?
Thomas Dolby "In hindsight, it's not that surprising that it has progressed as it has, but I would also argue that the most exciting time for technology was actually in the 60s. Anything musicians would play in a room back then could be recorded and put out as a record. Then, somewhere along the way, perhaps starting with *Pet Sounds* and *Sgt Pepper's…*, recording technology got used for something other than linear recording and became a creative medium of its own. You could do stuff in the studio which you couldn't do live and I think that's one of the reasons The Beatles stopped playing live, because of the big gap. Then when it came to *The Dark Side Of The Moon*, technology had advanced so that Pink Floyd could play Wembley and actually do a fairly faithful reproduction of their album.

"Also in that period, when four or five people went into the control room and got really creative with the equipment, it really was possible for something to emerge that was greater than the sum of the parts and there was a sense of occasion about it.

"It was new or rare enough that any new idea or combination of ideas resulted in a new sound. There was a limited period when this happened, because, as technology became more ubiquitous and accessible to anyone with the motivation to mess about with it, there was a bigger chance that

"The **most exciting time for music technology** was **actually in the 60s**"

"My **lifeboat studio** in East Anglia has really **very little gear in it,** but it's the **state of mind** when I'm here"

◄ Thomas Dolby has been aided throughout his career by a self-confessed ability to 'juggle left and right brain activities'

someone in the world would come up with the same combination. So, in terms of most exciting eras, my career did cover a lot, but I'd also have to take my hats off to the pioneers that came 10 or 15 years before me."

MT Do you think those early constraints in the studio and with technology were a good thing?
TD "It's a mixed blessing. Very, very few of us had access to those tools, the magic potion, in those days. There weren't many Pink Floyds and Beach Boys that had time to spend in a luxury studio to mess around. They were the elite, even among the bands signed to record deals and given enough leeway. So it's a good thing now that anyone who feels inspired can get their hands on technology that's capable of making music and distributing it, but the downside is that if you take away all the constraints, you take away the need to cut corners creatively and get around stumbling blocks in creative ways."

MT Tell us what kind of gear is in the Thomas Dolby studio these days?
MT "I have very, very little gear. I'm not in the camp that gets nostalgic about old analogue equipment. To me, it's actually more about the environment that I work in. A lot of the work I do is in my imagination, so for example, my lifeboat studio in East Anglia where I am sitting right now has really very little gear in it, but it's the state of mind when I'm here. There's no time limit on it; I could do it for half an hour or 20 hours – or actually, as long as there's wind or sun, as that's how it's powered! People come here and say: 'How do you get any work done, because we'd just sit and stare and look at the sea?' And I say: 'Well, that *is* me working!'"

MT Tell us more about your studio boat, the Nutmeg Of Consolation…
TD "It was originally an open rescue boat for a merchant ship, but there's a wheel house that was added on. I had some local traditional boatbuilders build me the wheelhouse out of reclaimed timber, which is where the control room is, and the rest of it is like a spare room for guests and a workshop/storage room for bits and bobs."

MT So what gear do you have 'on board'?
TD "These days, it's a laptop. I have a tower computer that hasn't been fired up in a while, as there isn't much I can't do on the laptop. It's a notepad for everything I do. There's a Nord and a Virus, a Moog Voyager, which was a present from Moog, a Lifetime Achievement Award… Then I've got a couple of mic pres, and that's it."

MAKING IT IN MUSIC IN 2017

THOMAS WAS LUCKY IN THAT HE SCORED HIS HITS AT A TIME WHEN PEOPLE MADE MONEY FROM DOING SO – AND ADMITS IT'S TOUGHER TO MAKE IT AS A MUSICIAN THESE DAYS…

"Well, it's very hard," he says. "Someone said to me the other day that the charts these days are really how far up or down you come on a festival poster. Everything is about that, as it is one of the only metrics in terms of making a living. Making records is not going to make you a living. Even if you get a deal with a label, it's not going to get you a big advance to live on. You'll get a more even split, but you'll not have the luxury that some of us had when you sign a deal and you can live for a couple of years.

"So it's not enough to just be great at your instrument and your songwriting any more. You also have to be a marketeer and a business person, a publicist and so on. You are not going to be in a position where someone is going to put that team together and fund it, so it's either not done, or you do it yourself and beg, borrow or steal to do it.

"The upside of the technology is that the barrier has gone – so tens of thousands of people can do it, but now you're competing with those tens of thousands of people. There are no filters any more, so to rise above the noise you have to go that extra mile, as it's not about the quality of the music any more, unfortunately."
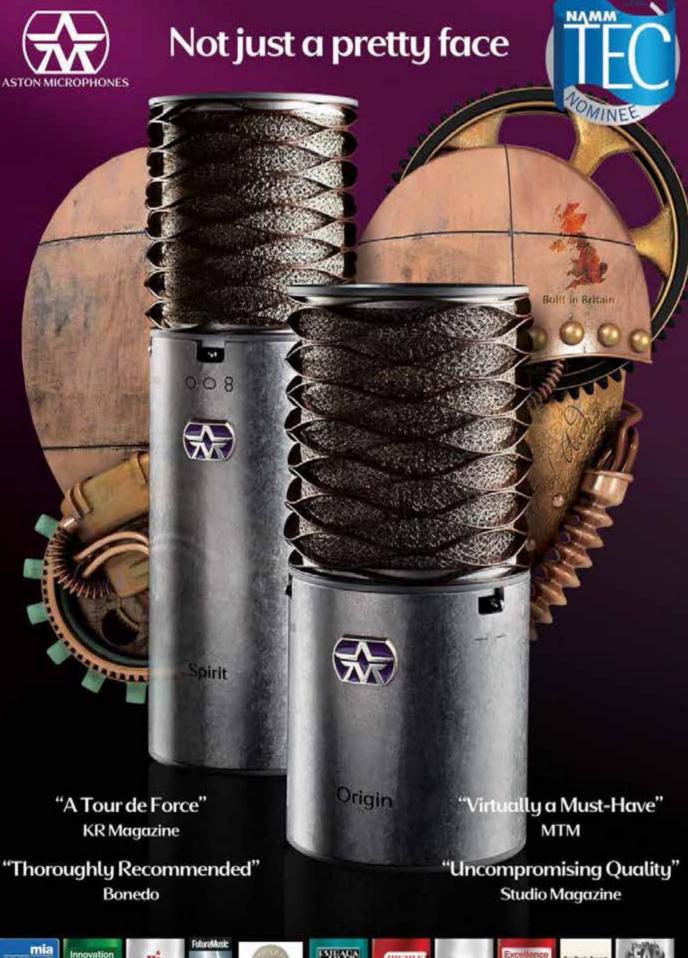
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MT It sounds like a far cry from your earlier studio setups, but is there anything you miss about them?

TD "It probably comes back to this sense of occasion on it. Very often, when I was working on a song I'd set it all up, work on it for a bit, get too excited, realise I had to get some sleep, go to sleep and there was always that thrill when you woke up in the morning and you had fresh ears and hit play and you were a step more removed than you were at 3am. Things would pop out at you that you couldn't hear at the time, when you couldn't see the wood for the trees and your first reaction was a really precious thing, as you were almost listening to it like a stranger. So you'd take on board what your gut reaction was and you'd spend the next few hours implementing changes, because you had the confidence that your objectivity was helping you make those decisions. And that's versus today, when I can hit Save and Quit and do something completely different, like go and edit my film or work on my book and it might be two weeks before I open that song again. I'm not saying you don't have the objectivity now, but you don't get the freshness, the 'live-ness' of when you hoped it was still there in the morning."

MT What is the best piece of music-production gear that you've used over the years?

TD "I think probably the Fairlight was my favourite – it was the biggest breakthrough for me. Analogue sequencing in those days was still fairly primitive, so making the leap to be able to cut-and-paste bars and repeat-paste bars was great, and instead of working with individual notes, each of which is generated on the fly, you were working with building blocks – which might be a chord or fully formed vocal line, so suddenly, the harmonic complexity, even though it was only eight voices and a limited memory, was suddenly on a new level."

MT It was an expensive piece of kit, though…

TD "It was insane. The year I bought my first Fairlight in London, the price was the equivalent of four London flats, and the power of that Fairlight you'd probably get in an app now for 99p!"

MT What sequencer do you use?

TD "I use Logic, but I use it in ways that it is not particularly suited for when playing live too, so I probably would be better off with Ableton Live for that. When I first saw Ableton, I didn't seem to relate to it as it seemed to be geared for the kind of constructivist music, what I call 'symmetrical music'. Some of my music is more like that, but often, it's more free-flowing than that, so it didn't click with

THOMAS DOLBY: THE PRODUCER

THOMAS PRODUCED SEVERAL BANDS IN THE LATE 80S AND EARLY 90S, BUT IS PERHAPS BEST KNOWN FOR A TRIO OF ALBUMS HE WORKED ON WITH PREFAB SPROUT CALLED *STEVE MCQUEEN, FROM LANGLEY PARK TO MEMPHIS* AND *JORDAN: THE COMEBACK*. SO WHAT DOES HE THINK MAKES A GOOD PRODUCER IN THE STUDIO?

"Of course, there are different kinds of producers," he replies. "There are engineer producers and there are musician producers. A musician producer would be a Quincy Jones or a George Martin and an engineer producer would be a Mutt Lange or a Steve Lillywhite, and different artists need different types of help. Prefab Sprout were open-minded enough to let me shape their arrangements and once the arrangements and the structures of the songs were right, which we did in rehearsal, the recording part was made a lot easier. A lot of good productions are built on the foundation of a good arrangement where the parts are good and don't step on each other and there is space for the vocal to fall in to. It's where the aural focus of the listener is directed to a solo instrument, to a percussive part or vocal, so the listener is led through – the point of view of the listener is well managed by the arrangement and the production. If you get that right, it's easy for people to fall in love with the sounds: they shine because of the context."

▲ All aboard, with Nord: Dolby on his spartan floating studio

"It was **insane**. The year that I bought **my first Fairlight,** the price was **the equivalent of four London flats**"

"Today, it's all about **zeroing in on your sound** and your **fanbase**… and that is a **much healthier thing**, in some ways"

◄ **Busking with a Virus TI2**

► **Thomas playing live at the Red Devil Lounge, San Francisco**

me. I knew Logic, and it has some powerful tools buried in its innards that I was able to adapt for my purposes. I'd also used a lot of Logic's own synths, so it would have taken a lot to switch.

"Logic has also become a lot more stable over the years, so I can now run things on a solid-state laptop live, rather than a tower computer. There was a period when there would be a crash every third or fourth show on a tour, where I'd have a crash in the middle of a song. I had a box of old merchandise T-shirts wrapped up in rubber bands that I'd throw out like it was a football game. It makes an event of it and people would read about it, so if I had a crash, a huge cheer would go up!"

MT What would you like in your studio that perhaps hasn't been invented yet?

TD "Maybe some gestural stuff. I'm quite lucky that I can juggle left-brain and right-brain activities, so I can divide 13 by seven while remembering the chord sequence or the melody I've just thought of. So I'm quite lucky from that point of view, but I'm not always comfortable. I wish in a way that those gloves, batons or swirly gestural things had taken root a bit, because the tools we have to work with now are a combination of what we had 30 years ago. It's like the QWERTY keyboard that has been inherited. I'm not really up on alternative interfaces, but am starting a new degree about all of that called Music For New Media at Johns Hopkins about using everything from alternative controllers to EEG brainwaves and things. It will launch in Autumn 2018, so people will come in who are interested in virtual or augmented reality and sound."

THE IMPORTANCE OF ONLINE…

MT The internet has become an incredibly important element for you now, hasn't it?

TD "Yes it has, and is for all artists. I was listening to a young songwriter on the radio and she was talking about how she put together a South American tour. A handful of fans down there really wanted her to go so she said: 'Well, if I can sleep on your couch and you can help me set up the gigs, then I will get on a plane and make it work.'
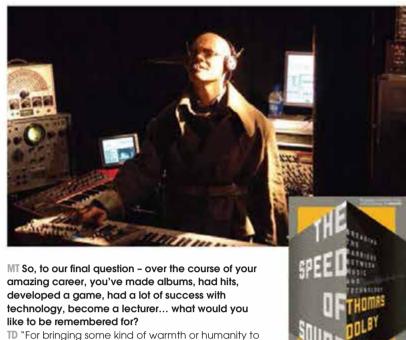
"In a way, that's a lot more like the musicians of hundreds of years ago who were travelling minstrels benefitting from the hospitality of their patrons. The 20th century was when recording and broadcast gave one person the ability to reach millions of listeners and get paid for it. It went from one musician to many listeners and now there are many more people involved in making music and making something out of it for their trouble."

GETTING BANDS TO DO IT THEMSELVES

THOMAS USED THE INTERNET TO CLEVERLY DISTRIBUTE HIS OWN MUSIC VIA THE GAME *THE FLOATING CITY*, BUT EVEN BACK IN THE 90S, HE WAS TRYING TO TELL BANDS THAT THE THEN-ADVANCING MARCH OF THE INTERNET AND MUSIC TECHNOLOGY WOULD CHANGE THE WAY THEY OPERATE…

"When it came to the 90s, the internet was growing and the big-label system starting to break down," Thomas recalls. "And the Sprouts were having some issues with their label, so I said to Paddy [McAloon, the band's lead singer]: 'You really should just put out your home demos.' His studio was getting more sophisticated at home, so the demos were getting better, as he was doing more on his own. And then his brother Martin was teaching music tech at Newcastle and teaching people how to build websites, and their fanbase was emerging online the same way that mine was.

"So I said: "Your demos are wonderful, you could put out a couple of albums a year and not be dependent on major-label funding, Martin could go out and distribute them, get your arms around your fanbase and make sure you have something to offer them, you could make a decent living from it." But he wouldn't be swayed, which is a real shame. He has stuff in his archives which is excellent and will never see the light of day."

MT **And also, the barriers between the superstar pop star and the fan have been removed, which is a good thing…**

TD "I think it is a good thing. When I started, the metrics were radio playlists, sales figures, royalty statements, and chart positions. The audience were just units which added up to 'x' number of sales, but they were faceless people and we – as the artist – had very little opportunity to understand why they liked it, how they heard about it and what they liked about it. If you played live, you were more face-to-face with the audience and you might hang out at the stage door and sign a few autographs and have a bit of a chat, but it was really very limiting. Today, it's all about knowing exactly why your audience likes you, how did they find out about it, what was it they loved about the last record, and zeroing in on your sound and fanbase… and that is a much healthier thing, in some ways."

MT **And it all came together for you in the *A Map Of The Floating City* video game…**

TD "When I came back and started making music again in the middle of the 90s, I built my lifeboat and I was sat here writing songs, thinking 'I've nearly got enough for an album', but then realised that was the last thing people wanted, another CD album. That's not what is happening these days. They're on social media or playing video games. So I thought the right way to view my music was as a video game or social-media experience, which has the advantage of opening up to a new generation of fans. The idea of the game was that you had to collaborate. You couldn't be successful without being good at the game, or knowing a lot about the music or the lyrics."

MT **So, to our final question – over the course of your amazing career, you've made albums, had hits, developed a game, had a lot of success with technology, become a lecturer… what would you like to be remembered for?**

TD "For bringing some kind of warmth or humanity to electronic music. One of the things that people love about electronic music is that the machines have a mind of their own. You can applaud them for that quirkiness and make interesting music that allows machines to be machines.

"I think that is what I chose to do with them, and it was quite different. I think it's unlikely that I will go back to music full-time, as I will always be attracted to something newer and more challenging, but I don't feel I'm done." **MT**

The Speed Of Sound: Breaking The Barriers Between Music And Technology by Thomas Dolby is out now, published by Flatiron Books

CONTEMPORARY PRODUCTION TUTORIAL Part 3

PROSODY IN TECHNOLOGY

Prosody is a term we use to define the uniting of the sonic and lyrical elements of a track. To demonstrate, **Erin Barra** deconstructs one of her compositions...

'Prosody' is a word I use a lot. Its meaning was taught to me roughly 15 years ago by Berklee professor Pat Pattison and in some ways, it's become the foundation for what I consider to be art – or at least the kind I'm interested in.

In the words of Pat: "Aristotle said that every great work of art contains the same feature – unity. Everything in the work belongs – works to support every other element. Another word for unity is prosody, which means the 'appropriate relationship between elements, whatever they may be'". Some examples of prosody in songs might be: prosody between words and music – a minor key could create a feeling of sadness to support or even create sadness in an idea. Prosody between syllables and notes – an appropriate relationship between stressed syllables and stressed notes – a really big deal in songwriting. When they're lined up properly, the shape of the melody matches the natural shape of the language. Prosody between rhythm and meaning – obvious examples like, "you gotta stop! (pause)… Look and listen." Or writing a song about galloping horses in a triplet feel. The elements all join together to support the central intent, idea and emotion of the work. Everything fits.

Mainstream examples of this include Garth Brooks' song *Friends In Low Places* and Michael Jackson's *Man In The Mirror*. In Brooks' song, the melody of the song

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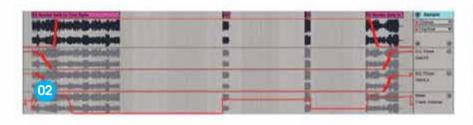
01 Two vinyl distortion loops, panned left and right, and drenched in reverb and run through the Waves J37 plug-in

02 Four automation lanes showing filtering of lows and highs using Ableton's EQ3 and the Dry/Wet knob on the native Chorus.

03 A sample of *Smoke Gets In Your Eyes* by The Platters, and two tracks of deep breaths, one panned to the left

and left completely dry, the other sliced and resequenced, then panned to the right and heavily effected.

when he sings: "I've got friends in low places" is pitched quite low on the word 'low', again, sonically mimicking the intention of the lyric. Or in the last chorus of *Man In The Mirror*, there's a half step modulation up on the word 'change', reinforcing that the narrator himself is going to make that change. There's so many ways prosody manifests itself in music; harmonically, melodically, rhythmically, lyrically… and perhaps the thing that gets talked about the least and what I'd like to focus on here, is sonically.

About seven years ago, I was working with a mix engineer on a song of mine and I suggested he add a delay throw on the lyric "begin again", pointing out that the delayed signal was in and of itself beginning again, and wouldn't that be a cool way to spotlight that lyric? He looked at me a little confused and asked me

work as a whole and create an interconnected listening experience, while touching upon some of the compositional elements as well.

PRIMARY INSPIRATION

First off, let me tell you where the song came from. I have a friend that I often find myself writing about. She lives her life with a sort of reckless passion that is almost diametrically opposed to my own life, which simultaneously confuses and inspires me. A few years ago, she found herself in a broken marriage that she was desperately trying to cling to while singlehandedly ruining it through her own actions. I remember saying to her one day: "It's like you're living in a house that's on fire, but you two are just sitting in the living room pretending nothing's wrong." Once the phrase came out of my mouth,

I wanted to capture the anger, confusion, blame, sadness, rage… all of it, inside this burning house of a song/production

which part of the song that was in, which is when I realised that after countless hours into working on this song, he hadn't been listening to the lyrics at all. It's almost too easy for us as producers and engineers to get completely caught up in the way something sounds without stepping back and taking a full view of what it is we're working on and why it was composed in the first place. Writers are constantly encouraged to make these deep connections as often as they can, making sure to pick the right musical tool to tell a story – but we hardly ever talk about these artistic choices as engineers and producers.

To illustrate the power of sonic prosody, I'm going to walk you through a piece I wrote and produced titled *House On Fire*. You can watch my performance of it and tutorial breakdown via the DVD included with this issue, or by searching for it on YouTube. I'll be pointing out the sonic connections that make this piece

I knew I had stumbled upon something good, and thus *House On Fire* was born. I wanted to capture the desperation, anger, confusion, blame, sadness, rage… all of it, inside this burning house of a song/production.

Needless to say, I needed to start a fire so I began with some vinyl distortion. I took two separate loops, panned them right and left, drenched them in reverb with a bit of J37 slapback tape delay and next thing you knew, I had a warm crackling fire.

Then I used a sample of *Smoke Gets In Your Eyes* written by Jerome Kern and Otto Harbach in 1933, and later recorded and made hugely famous by The Platters in 1958. The lyric I was most interested in using was: "They said 'someday you'll find all who love are blind'/ When your heart's on fire, you must realise, smoke gets in your eyes". Since this is a story about a love which starts off with the best of intentions and slowly deteriorates, I start

by just playing the sample as is, and then slowly filter out the low and high frequencies to create a sort of telephone effect which mimics the growing distance between these two people, then add a chorus to smear and diffuse the signal. I could have gone further by doing some bit reduction, distortion, etc. I also use smaller snippets of this song elsewhere. I took a part where the lead vocalists held an 'Oh' and his voice sort of broke in this desperate way, pitched it up and slowed it down, turning it into an unsettling scream I trigger right before the chorus.

Then I did some deep breathing… literally. I took a variety of deep breaths into an AT4050 running through an Apogee Duet, then took that file and sliced it up on another track in a sampler and grouped the two tracks together. On the sliced track, I sequenced a new rhythmic pattern of the breaths, which I again drenched in reverb and delay while keeping the original file completely raw and as is, then panned the two left and right. Just the breaths themselves in this iteration, paired with the vinyl distortion, are enough to make you feel like something terrible is about to happen, foreshadowing what's to come.

Next thing I did was slice up a breakbeat and resequence it so that the rhythm felt both 'on' and 'off', by switching back and forth from straight

4a **Saturation, drive** and tape delay, via the Waves Reel ADT Live plug-in and used as an insert on a vocal chain.

4b **Quarter-note delay** via Waves H Delay, used in parallel on Send B.

4c **Max For Live** Convolution reverb emulating Bricasti's M7 Rich Plate setting, used in parallel on Send A.

MT CPT PART 3

Prosody in technology continued

subdivisions of the beats to triplets. I was trying to create a sense of rhythmic stability for the piece that simultaneously felt very unstable, again mimicking the relationship in question. From there, I used a digital emulation of a Mellotron choir called Microtron by Puremagnetik to lay down the harmonic foundation. Generally speaking, I find Mellotron choirs to have a really eerie sound, so using it was an easy conclusion to come to. I used chords that had tense intervals, like 4ths or clusters of three adjacent notes playing simultaneously. To make it even more tense, I used an LFO to modulate the volume, creating a tremolo effect that was running at a frequency that was not synced to any subdivision of the bpm, so it just felt 'off'.

BORROWED SOUNDS

As you can tell, samples and samplers play a huge part in making this piece a success and are a big part of my compositional process. Between sampling my own audio, using other people's audio or an instrument such as a Mellotron, there's a whole lot of sampling going on. To me, it's a lot like borrowing a chord progression from another song or building a new piece around a lyric from another – both of which are things I'm not ashamed to do. Similar to sonic prosody, this sonic borrowing is just a further extension of my writing process.

At this point in the piece, I still haven't sung a single lyric of my own, but the choices I've made in terms of my sonic palette, effects processing and automation have done a lot of talking on my behalf. When I perform the song, the arrangement gets built in real time via live looping of MIDI sequences, creating a slow build to the verse. Usually, I wouldn't have such a long intro in a song, but in the context of a performance, it made a lot of sense and helped to create that looming sense of impending 'something'.

EMOTIONAL EFFECTS

When it came to the vocal, I knew I wanted to obscure and process the signal in a way I typically wouldn't. A lot of the time, when I'm creating a vocal chain I'm looking for warmth, clarity and presence, but considering what the song was about, all of those things seemed wrong for this composition.

I settled on bussing way more reverb and delay than is usually considered tasteful, which helped to smear and obfuscate the signal, but the rug that pulls this whole vocal chain together is an Abbey Road Reel ADT, which I used to create an eerie double-tracking effect – which I drove pretty hard. The end result is catered, custom and to me, adds a huge amount of meaning. Melodically, I'm holding out notes while

slowly gliding up or down into other tones, trying to mimic the sound of an alarm or siren. I also end my phrases on unstable tones, so that you never really get a sense of arrival or safety.

The next texture I addressed was the bass, which I synthesised using a Moog Minitaur running through an MF Drive pedal. To me, analogue synthesis offers the ultimate depth and warmth and, when overdriven, it gives me that extra

iD4

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MT CPT PART 3

Prosody in technology continued

05

edge of grit and gnarl, which works perfectly for this piece. Since the song needs room to evolve, I actually hold off on engaging the overdrive until the very last chorus, where the emotional narrative moves from denial and blame to outright rage. I reinforce this harmonically by only playing the tonic pedal throughout the entire piece leading up to this last chorus, which in this instance, happens to be the note D. The Mellotron is harmonically progressing, but it's pinned down by this single note which won't allow it to move. I imagine that's what being in a failing marriage might feel like; this desire to move ahead while not being able to. In the last chorus, I release that tension and engage the overdrive, allowing the bass to follow a rising-lne cliché shadowing the rage and anger this part of the song represents.

After this emotional peak in the last chorus, there's an arrangement break where we reach a point of sadness and even perhaps acceptance. The majority of the textures fall away, leaving our protagonist at the end of the song, exhausted and having reached some point of clarity. To underscore this, I rerun the Platters sample, this time reversing the automation, removing the chorus and

filtering the lows and highs back in, bringing the signal back into focus.

To conclude, all we're left with on the song is the crackling fire, this time representing the ashes of what once was a house, and then we fade to black on the master.

processors, engineering, sequencing, software and hardware instruments and arrangement, not to mention all the musical interplay.

I happen to be both the composer and producer in this instance, but whatever role you're playing, you just

On your next production, look for ways to link the sonic canvas you're creating to the emotion the song is trying to get across

DON'T THINK… FEEL

When I perform and listen to this song, I feel feelings, which I believe to be the point of why music gets made in the first place. Creating these deep connections between the stories we tell and the tools we choose to tell them, to me, is art. Technology doesn't have to be purely a technical tool, it can be very creative if you approach it in this way. Hence, during this article, I've touched on how prosody can manifest itself through automation, sampling, synthesis, effects

need to look for and find these type of connections. Next time you're engineering a song, ask yourself what it's about and how you can you reinforce those ideas via your mic'ing techniques, signal-flow management or the choices you make in the mix. On your next production, take a step back and look for ways to link the sonic canvas you're creating to the emotion the song is trying to communicate. I guarantee that both you and your listener will walk away feeling more connected. 🎵

LOGIC PRO X TUTORIAL

BIG SYNTHS
IN **LOGIC PRO X**

There's more to a mix-filling synth sound than simply pressing the Unison button. **Mark Cousins** shows you how to add real scale to your patches…

Once upon a time, 'big' synth sounds meant equally large budgets – with only the wealthiest musicians able to stack together multiple polyphonic synths in the aim of creating mix-filling synth lines. In the world of virtual instruments, however, this level of excess is much easier to achieve, as even basic software setups have access to a number of different poly synths. What quickly becomes apparent, though, is that the process of creating these big synth sounds is more than just layering multiple instances of the same synth patch. Creating a truly 'big' synth sound requires a considered and thoughtful approach, arguably exploiting a number of different synthesis techniques.

To understand what makes a sound 'big', we need to break down the various ways this can be achieved. This will involve considerations like pitch, detuning, stereo positioning and effects, all knitted together to form distinct layers of sound. Although the end listener hears a singular patch, in reality, you'll need to construct this from three or so separate layers, each making a distinct and separate contribution.

PERFECT UNISON
Your quick-and-easy starting point for big synthesiser sounds is the Unison feature, found on both Retro Synth (which we'll focus on for simplicity) and the ES2. Unison imparts instant stereo width and body to a sound by adding additional voices, each slightly detuned and positioned across the stereo image. In the case of Retro Synth, for example, you can specify the number of additional voices (two, four or eight) as well as the relative amount of Voice Detune and Stereo Width. Balancing these three key parameters – voice count, detune and width – is what you use to define the scale of the patch.

One key point to remember with Unison is that bigger isn't always necessarily better. Larger voice counts tend to smear the effect, whereas some of the best results

come from the two- or four-voice settings, with a more aggressive amount of Voice Detune. As effective as Unison is, though, you soon realise there's a distinct limit to the scale you can reach. The problem is that there's no real distinction between the layers, so that every oscillator is just a slightly different version of the main sound. The trick is making each layer unique – a similar-sounding patch, of course, but different in some way.

A really obvious starting point is octave transposition, which has long been used in classical music to add power and body to the sound. In addition to the main patch, therefore, I usually add two additional layers, an octave above and below the main unison synth line. These 'high' and

'low' doubles then need something to distinguish them from the main sound. In the walkthrough, for example, the top layer is 'pitchier' than the main patch, with pronounced vibrato and glide. The lower patch, on the other hand, uses PWM (Pulse Width Modulation), which has a similar musical effect to the warmth of Sawtooth waves beating against one another, but with a distinctly different tone and timbre.

When it comes to effects, the combination of a cathedral-like reverb and some tempo-synced stereo delay tends to be the default choice for these types of synth sound. Again, though, try to think of some distinction between the layers – maybe keeping one part relatively dry while other layers are drowned in reverb. Also, pay close attention to the colour of your reverb when using long settings like this. Using darker reverb settings, as well as a touch of high-pass filtering, will ensure

your reverb sits in a distinct part of the sound spectrum rather than eating up a chunk of the mix. The use of pan can help define the soundstage, arguably adding the default 'distributed stereo' voice assignment as part of the Unison feature.

STACKING SHELVES
One really useful feature in Logic is the Track Stack feature, which offers a number of benefits. Once the synth tracks have been packed into a summing Track Stack, you can use a single MIDI region (on the top level) to trigger to whole stack. Collapsing the stack, of course, reduces screen clutter, especially where you've used multiple instrument instances. The final benefit of Track Stacks is the application of

Following these simple guidelines will make a big difference to the scale of sound you can produce

insert effects – like the ability to EQ the summed synth parts en masse, or to route them all through a filter. The distinction to make here is between processing applied to single instruments to create definition between the layers; and insert processing applied across the Track Stack, to assist in shaping the broader qualities of the musical part.

Although the walkthrough focuses on Retro Synth, the techniques here work best when you exploit a range of different soft synths, each bringing their own unique flavour to the mix. With each layer, always follow the mantra of 'similar but different', ensuring there's a musical continuity between the sounds, but that each layer contributes in its own way. Hopefully, following these simple guidelines will make a big difference to the scale of sound you can produce, and, therefore, the scale and impact of your music.

PUSHING THE ENVELOPE Try experimenting with different release settings across the three layers, looking at both the amp and the filter. You could, for example, let the high-end ring out more with a slower release, or favour the warmer part of the sound spectrum by extending the Mid and Low patches.

Powered by **POINT BLANK** MUSIC SCHOOL

MT STEP-BY-STEP

Big Synths

01 Open the Logic Project included on the DVD. The starting point is a basic chord sequence alongside an instance of Retro Synth set to its default setting. Open the Settings tab in the bottom right-hand corner.

02 By default, Retro Synth includes some basic patch-doubling features found under the Global Settings. Set Voice Stacking to four voices and set the amount of Voice Detune to around 0.65 for a thick, unison sound.

03 Create a new instance of Retro Synth. Assign both instruments to their own Track Stack using the menu function Track > Create Track Stack. When prompted, create a summing stack and drag the MIDI to the uppermost tracklane.

04 This second synth will work as the high-octave doubler. Use the Transpose feature under Global Setting to shift it up an octave. Raise the Cents control in the Oscillator section to add a rich detune effect.

05 The top layer will have lots of pitch-based effects, including glide and vibrato. For vibrato to work, you'll need to lower the wheel control so that the mod wheel doesn't control the depth of the effect.

06 Now let's look at the mix. Reduce the volume of each instance of Retro Synth (found in the Amp section) so that the average level is around -12dB, and then create bus sends for each instrument.

THICKENER EFFECTS Effects like chorus, flanger and phaser have long been used as means of fattening synth sounds. With access to almost limitless polyphony, though, these effects aren't so common, but their unique sound (especially for 80s-flavoured lines) is still worth exploiting.

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MT STEP-BY-STEP

Big Synths continued
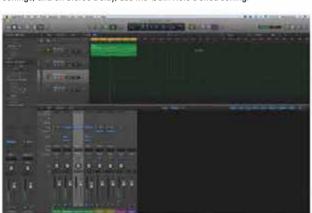
07 On the newly created aux faders, create an instance of Space Designer and Stereo Delay. On Space Designer, use one of the larger reverb settings, and on Stereo Delay, use the 1/8th Note Dotted setting.

08 Try playing with the respective cutoff settings for each layer to see the range of effects you can produce. The top layer could be brighter, for example, while the lower layer sounds darker, and vice versa.

09 Now let's add a third layer that will sit an octave below the main synth part. Create a new instance of Retro Synth and ensure that is gets dragged into the Track Stack you've already created.

10 The lower synth uses Square waves rather than the Sawtooths we've used so far. Transpose the patch down one octave and set each Shape control in the Oscillator section midway through the Square/Pulse setting.

11 Add a small amount of Shape Modulation from the LFO and a slow-moving vibrato. What we've created is a classic PWM (Pulse Width Modulation) pad sound, which sounds even nicer with a dark filter setting.

12 Think about the panning of your layers. The big unison pad already has plenty of 'spread', so think about positioning the high and low layers partially to the left- and right-hand side of the soundstage.

LOGIC PRO X TUTORIAL

MT STEP-BY-STEP

Big Synths continued

13 Although we've only used Retro Synth so far, you might want to explore other synths like the ES2. This patch makes use of parallel filters and the drive control to add grit to the sound.

14 As well as processing on a channel-by-channel basis, you can achieve some interesting results processing the sound en masse. Remove the current bus sends and recreate a simplified version on the Track Stack.

15 The AutoFilter plug-in is an obvious choice for big synth parts like this, and has the added bonus of locking the parts together and making it sound like it was produced by one, battleship-sized synthesiser!

16 Another interesting option is to use a tempo-synced LFO across the whole synth part. Here, we removed the Envelope as a source of Modulation, and instead routed through the LFO at a depth of about 50%.

17 Set the LFO so that it's tempo-synced to a rate of 1/8th. You can fine-tune the result by adjusting the relationship between Cutoff and LFO depth. Using less LFO, for example, will make the effect subtler.

18 If you've used a subtle LFO movement, you'll have room to further modify cutoff to add additional sonic interest. Try adding some automation so that the part gently undulates in addition to the tempo-synced movements.

ABLETON LIVE TUTORIAL

CLIP ENVELOPES
IN **ABLETON LIVE**

Envelopes add a new dimension to Live's audio and MIDI clips, from straightforward fades to complex automated sound-design evolutions. **Martin Delaney** enters Draw Mode…

Clip envelopes are Live's take on automation, particularly in Session View, while in Arrangement they merge into track automation as well, but fundamentally, there's not much difference. Clip envelopes can be little useful messages that tell a track to fade or pan, for example, but they can be powerful creative tools in themselves… if you want busy, evolving sounds, they are your friends! There are so many things we can do with clip envelopes, but it's the more sound-designery ones I'm drawn to. It's a good exercise to take just one clip and use envelopes to push it and exploit it as far as possible. When combining envelopes in a project, it's important to practice with different-length clips playing together, and to use different-length envelopes within those clips – they don't have to be in units of bar-length, either.

SCORE DRAW
You can create envelopes by drawing in breakpoints along the horizontal lines, and when you need something more precise – like for clear on/off functions, or for rhythmic effects, tap 'B' on the computer keyboard to go into Draw Mode. Now you can draw in 'blocky' values that conform to the current grid, which of course you can change at any time. There's no reason you can't mix-and-match approaches in the same envelope – once you exit Draw Mode, you'll see breakpoints at the corners of your horizontal and vertical steps, so if necessary you can edit those and revert back to a semi-rigid arrangement. It's a single click to add or remove breakpoints, and you can move the lines between them by selecting and dragging.

If you mouse near an envelope and hold down Alt/Option, you can draw a curve instead of a straight line. If drawing envelopes is too sterile for you, don't forget you can record automation as well – enable Automation Arm, and move the

on-screen controls, or assign a hardware MIDI controller, or move the encoders on Push. Recording will result in a fully organic and potentially wilder set of envelopes (that's the other advantage – you can record several envelopes at the same time), but of course, they're completely editable afterwards, so you're free to tidy up as much as necessary. You can also hit undo to erase the envelopes recorded in the last loop of the clip you're working on.

It's also important to be aware that the MIDI clips you're working with don't have to contain any notes. If you're playing keys or pads into the track, you're just going to get the sound of the instrument and effects as they're currently configured. But if you

Clip envelopes can be powerful creative tools… for busy, evolving sounds, they are your friends!

have a number of clips with envelopes in the track, start one running while you're playing your keyboard or Push, and you'll hear the envelopes take effect on the incoming notes. You could even use follow actions to play through a selection of clips automatically as you play your keys. Live's MIDI overdubbing lets you update the same clips without rubbing out the existing automation.

Thanks to envelopes, those same clips could be used to load specific instrument and effect combinations on demand. Load or create an instrument rack, and click on the little show/hide chain list button at the left-hand side. When you're looking at the chains in the rack, you'll see a button called Chain above them: click that. The new window that opens out is where you can define a zone for each chain, by dragging their positions and lengths as desired (you can use the little thin bars

above each one to create fades as well, if you want). Once you've set up your zones, take note of the numbers in the bar above them, from 0 to 127 in typical MIDI style. You can use as many zones as you want, and be creative – chains can share zones as well, and if you have racks inside racks, you can work with the chains inside all of those as well. Now go back to the envelope box and you can use clip envelopes to load or fade between different chains in the rack. This is very effective for organic patch changes, and also works great with drums, crossfading a beat between different kits sounds awesome.

Clip envelopes don't just work on Live's native devices; the Chooser should show

the parameters for any third-party plug-ins you've added to the track, and they're not just for MIDI tracks, either, though of course there are fewer control options with audio clips, although basic clip envelopes are available for volume and pan, and so on, as well as the parameters of any devices you've added. Arguably, you can get more envelope-driven control over audio clips by putting them into Simpler instead, and adding them to MIDI tracks. Clip envelopes are portable – you can copy and paste them between clips in different tracks, even different projects, or drag them between projects via the Browser.

Because Live doesn't differentiate much between different stages of the musical process, envelopes become part of the composition process; bring them into things early on and you'll be coming up with ideas and even melodies and rhythms you wouldn't have thought of otherwise.

SENDING CLIP AUTOMATION Live can send clip envelope automation – or track automation – out to other software or hardware as well. Just select your output target in Preferences and the In/Out View for the relevant track, then choose the MIDI channel and control numbers that you want to use.

MT STEP-BY-STEP

CLIP ENVELOPES
– DOWN THE AUTOMATION RABBIT HOLE

01 To follow this tutorial about automating clips, you're going to need some audio and MIDI clips to play with: it doesn't really matter what sounds you're using. I'm using Live 9.7.5 for this.
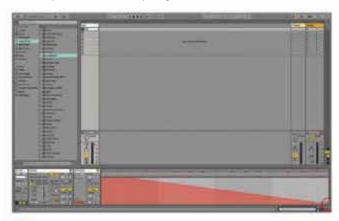
02 Let's start with a simple fade on an audio clip. Here's a one-bar beat. Double-click it to view the editor, then click the small 'E' below the Clip Box to view the Envelope Box.
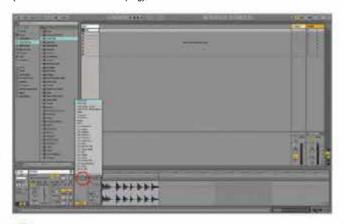
03 In the Envelope Box, choose Clip in the top chooser, then Volume in the bottom one. At the top of the waveform you'll see a red horizontal line – the envelope. Click on that halfway along.

04 You've added a breakpoint. Add another one at the end of the envelope, and drag it all the way down. Now every time you play that clip (whether as a one-shot or looping), it'll fade out.
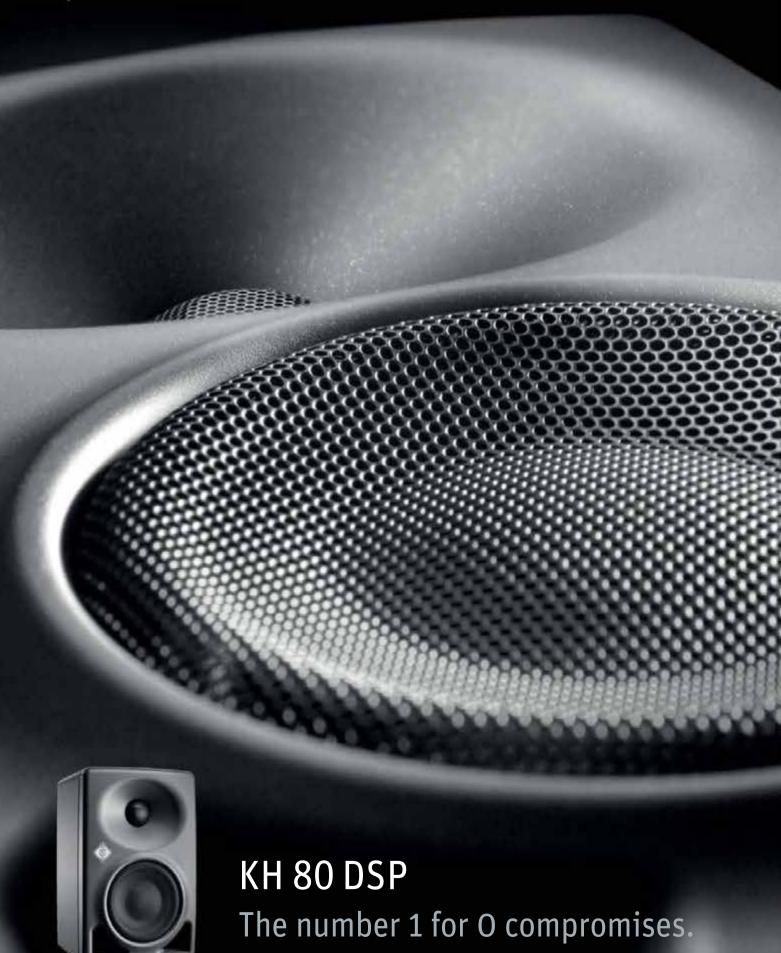
05 Now click the Linked button and type 4.0.0 in the length box. Now you can drag your breakpoints around so the fade takes place over four bars, even though your clip's only one bar long.

06 Finally, we'll add an Auto Filter to the same track. Now you'll see it appears as an option in the top chooser, with every one of its parameters available in the bottom chooser.

>> NEUMANN.BERLIN

KH 80 DSP

The number 1 for 0 compromises.
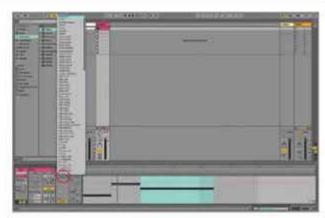
PROGRAMMED TO RECEIVE To send automation to other software or hardware, you'll have to check what messages the receiving equipment needs – read the manual or search online. This is just one way in which Live makes it easy to integrate external hardware systems.

CLIP ENVELOPES
– DOWN THE AUTOMATION RABBIT HOLE continued

07 This of course means we can apply envelopes to all of these, at the same time as the clip volume envelope, and they can all be different lengths – very important to remember that.
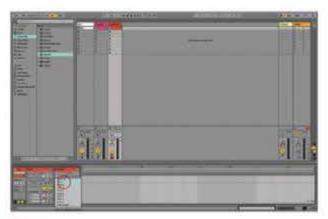
08 Load an instrument device into a MIDI track. I'm using Analog as my example. Program a few notes into a MIDI clip, then look at the envelope choosers, once again you've got every parameter available.

09 Now I'm loading the default Operator Sine wave preset into a new track. Then type Cmd-G to put that into an instrument rack. Drag another Operator into the drop area to create a second chain.

10 Set that second Operator to a different basic sound – try something like Saw 16. Now make a new MIDI clip and look at your envelope options… there is lot of new stuff in there!

11 Not only can we automate each instrument, and any audio or MIDI effects, but if we add them, we can automate the behaviour of the rack itself, from the mixer to macros to chain selection.

12 If you don't already know how to configure chains in instrument racks, read the main text here. But let's assume you've done that now. You can use the chain-selector envelope to switch chains…

ABLETON LIVE TUTORIAL

MT STEP-BY-STEP

CLIP ENVELOPES
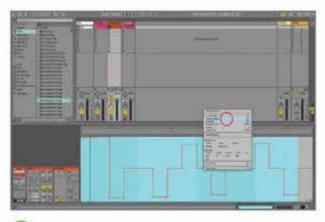## – DOWN THE AUTOMATION RABBIT HOLE continued

13 …so a single clip can switch, or even crossfade, between entirely different sets of sounds and effects as it's playing. Use Draw Mode if you want to draw in more blocky changes that conform to the grid.
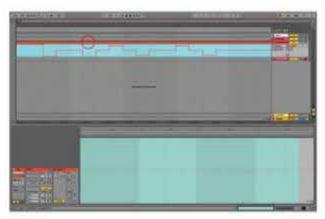

14 This works even if the clip doesn't contain notes – you can launch a clip with automation changes, and in the same track, you can play your Push or keyboard, and those changes are applied.

15 By now, you've probably guessed, we can do the same kind of thing with drum racks – load a preset drum kit and start by using envelopes to get the macro controls moving.

16 Envelopes can be copied and pasted and repositioned, so you can draw some kind of incredibly detailed specific pattern, then paste it into another parameter, and nudge the timing back and forth.

17 One of the great things about this is that when you record or copy/paste your Session View clips to Arrangement View, the envelopes are retained – Live treats them as track automation.

18 …and when you move material back the other way, to Session, either manually or with the Consolidate Time to New Scene command, the envelopes go back to being clip envelopes. **MT**

10 TIPS to move beyond the DAW loop

DAWs are great at helping us loop ideas together, but it's all-too-easy to stay stuck in loop land. Try these ideas to help expand your loops into sonic masterpieces…

1 Looping! There's nothing wrong with it!

Telling you to loop might seem the oddest of ways to help you move beyond the loop, but what we're saying is: don't be scared of looping. To move beyond it, you have to embrace it. DAWs like Logic and Cubase, and especially Live, have looped bars and clips at their hearts. They use the loop as the very first easy way to make a tune. And many of the ingredients you load into them are loops of beats and riffs. Repetitive beats, melodies and basslines are our musical heartbeats at the heart of music technology. So embrace the loop, understand the loop; then use it and abuse it.

2 Automate

Automation is probably the greatest gift the DAW has given us, as it allows you to record pretty much any control, on any mixer, or any instrument, in any track. So even if you just have a stack of repeated loops as your arrangement, you can easily bring variation to the party with a bit of automation. Fade tracks in and out, record a sweeping filter change, add some track mutes and un-mutes, gently bring in some reverb or delay… get some loops together and automate the s*** out of them!
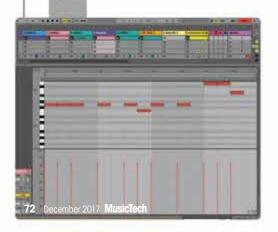
Use velocity movement

Many sounds will change when you alter the velocity of a key press or recorded note, so if you want to make one loop sound different from another, change the velocities of the notes within it. You should always do this with percussion and beats, as simply altering the velocity of recorded beats will bring a live, human feel into your song. Unless, of course, you want your music to sound like it was recorded by a robot. Of course, there's nothing wrong with this at all – give us some decent Kraftwerk or Daft Punk any day.

3

4 Randomise

One of the best ways that one loop can be made to sound different from a previous one in a project is if a random element comes in to play and alters something within the loop each time it cycles around. Examples here can be hit and miss – random-note generators can obviously sound as rubbish as they can sound good – but a more subtle effect is to use a synth with a random-waveform oscillator modulated to note velocity. That way, notes of the same velocity in a loop can sound different each time they loop around – it's as though you've been working on the velocity programming for hours. GForce's Oddity2, for example, has some great presets that do this and which enable us to be as loop lazy as ever!
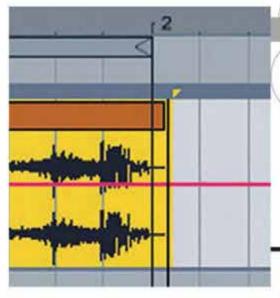
5 Use evolving movement

Some of the incredible libraries and instruments that you can get for soundtrack composition often bring in so much movement to a sound or track that they disguise any looping action that may exist underneath. Instrument sounds from packages such as Spitfire's BT Phobos and Output Sounds' Movement (the clue is in the name) often contain rhythmic and pulsing presets that add a whole gamut of movement to looped ideas. If you have sounds that move within a loop, each loop comes to life.

6 Loop different sounds

No, we don't just mean 'loop different audio sounds', as that would not be looping. Instead, we mean 'loop the same MIDI loop to trigger different sounds'. Create tracks with different bass sounds, for example, to quickly drag loops to and you will easily start getting variation. Again, layering is also a great option to take advantage of here – especially with beats and basslines – as you can very easily change a loop's progression while still maintaining looping as your core compositional element.

7 Don't loop – break the mould instead

Of course, the easiest way to break out of the looping mould is not to loop in the first place, but after encouraging that you embrace the process in Tip 1, it would be churlish to suggest that you don't at this point in our feature. But the message here is that, as humans, we like order, we like patterns, and we like repetition but when it comes to music production, we should really try not to get bogged down in any one style of composition process. If we don't, then the process itself becomes a kind of loop, if you think about it. So try and break the mould each time you boot up your computer to make music – and for life in general, coming to think about it – and you'll get more out of loop mode, and maybe even get out of loop mode.

8 Loop, but vary your length

Ableton Live can be a very good ally when it comes to tackling this approach. At its heart are clips that loop when you press play, but if you vary the length of them – maybe you could have some at just a couple of bars, some at 32 bars and some at odd-numbered bars – then you'll get loops coming in at more unexpected timings and the whole tune will take a dramatic shift from the expected and predictable to a more free-flowing experience. More jazz than electro, if you like.

9 Use expressive controllers

Some very basic keyboard controllers don't allow a lot of expressive output – they might be lacking MIDI velocity or aftertouch, for example. And if you just use your computer keyboard to play notes, you can pretty much forget any expressive recording! So try to have a keyboard with at least velocity and aftertouch and you will be halfway to recording notes with variation and therefore, loops with variation. Companies such as ROLI have made the act of playing notes a much more exciting proposition by exploding the dimensions of touch you use to play notes. And software instruments that incorporate the company's MPE (MIDI Polyphonic Expression) technology can be sonically bent and twisted like you would not believe.

10 Small sounds, big difference

A drum loop can sound great, but listen to it on its own and you'll soon find your attention wandering. Of course, you can layer drum loops together for more variations, muting and unmuting different ones along the way in order to introduce some noticable changes and different permutations, but adding smaller effects, hits, taps and shimmers here and there can make a surprisingly big difference to a rhythm track. An extra fill here, an offbeat snare there and it'll sound like you've got a proper drummer in to do your beats, and not just merely pressed CTRL>R and inserted the number 128.

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ACOUSTICA
Mixcraft 8 Pro Studio

$179 OR **$89** FOR RECORDING STUDIO

Watch out Apple, Steinberg, Ableton et al, there's a whole bunch of low-cost, high-spec DAWs snapping at your heels. **Andy Jones** tests the latest Mixcraft…

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A s we have seen in recent issues of *MusicTech*, the world of DAW music production is hotting up, with producers getting more features for far less outlay than ever before. Ableton Live, Steinberg Cubase, Apple Logic, Reason and Avid Pro Tools are still popular but, by god, there are an increasing number of feature-packed and equally versatile options moving in on their turf. Most recently, we looked at Tracktion Waveform, a fantastically neat DAW that pretty much does everything you could need on any machine, and there are plenty more contenders from the likes of Bitwig, PreSonus and this – the latest update to Mixcraft from Acoustica.

We last looked at Mixcraft a couple of years ago, so it's high time that we gave it another in-depth look. This is a PC-only DAW but, on the face of it, it comes with a staggering featureset that not only includes a list of pro features, but

Key features
- **56 effects**
- **21 instruments**
- **Unlimited audio tracks**
- **Music notation, step and piano-roll editors**
- **Over 7,500 loops and samples**
- **Natively integrated Melodyne**
- **Video-editing features**
- **Live-performance panel**
- **All-new Kastelheimer Veldberg XD instrument**
- **All-new Omni Sampler 8 instrument**
- **All-new VTD-42 Psychedelic Delay effect**
- **iZotope Mastering Essentials suite**

also bundles $1,250 worth of extras. And with this top-end Pro Studio version selling for just $179, it already seems like the DAW deal of the century.

UP ON FEATURES, DOWN ON PRICE
Turning to the features in more detail, Pro Studio has unlimited audio tracks; three types of editing (piano roll, notation and step); video-editing facilities; and a not inconsiderable 7,500 samples (hits, loops and effects). But it's that claimed $1,250 of plug-ins where it gets really interesting. The latest update includes Kastelheimer Veldberg XD, a synth described as having a `cold, heavy and ultra-sharp sound, with analogue-sounding liquid filters and hard oscillators'. Then there's the ME80 and Memorymoon vintage synths, both based on classic Yamaha and Moog synths respectively. A jewel in the crown has to be the Pianissimo piano instrument; a physically modelled piano that also combines Steinway

samples. Add a bundle of iZotope Mastering Essentials plug-ins and Celemony's Melodyne Essentials and it seems that Acoustica has done a great job as a kind of software farmer, gathering a fantastic flock of titles to its Pro Studio farm.

SETTING UP

There's very little to talk about with installation – simply download (a boxed version is also available if you prefer, but you'll pay extra shipping), enter your serial number and you're away. We tested Pro Studio on a relatively clunky PC laptop and it installed and ran with ease, unpacking itself and spreading itself in a very slick fashion. After the main install, you then run through an equally simple – but online necessary – Melodyne install and you're ready to go.

I like a good demo song when I'm reviewing a new DAW, as it helps me to learn my way around. Pro Studio boots up with a very slick – sorry, that is a word I'm already overusing – example, complete with vocals, and tweaking and editing it really gives you a feel for what the DAW is capable of. The layout will be familiar to most DAW users: you get the usual top-to-bottom tracks, left-to-right song flow and windows for the main arrangement and mixer, or this window can show edit-page windows (for audio and MIDI), or the sound library. It's standard stuff, but the way the windows can be docked and undocked from one another is very neat. Plus, I also like the fact that you have volume and pan controls built in to each track, so you don't need the mixer window open at all for more rudimentary tasks.

The overall look is Logic grey and the text is very PC-like. Opening instruments is easy – just click on the keyboard icon on each track and a browser window gives you the choice to either open up via instrument (there's a VST folder) or, usefully, by sound type. Aside from the odd issue when I dragged edits a little too far (and found myself too readily at the bottom half of the project – probably my fault), using Mixcraft Pro Studio is great. Coming to it new, I'd definitely invest time in using those

RECORDING STUDIO

Even cheaper! Mixcraft 8 Recording Studio is the cut-down version of Pro Studio, aimed at home and project-studio users. At just $89, it still features plenty of useful tools including the music notation, step and piano-roll editors; unlimited tracks; 28 effects, and 15 virtual instruments, plus those 7,500 loops. For double the money, Pro Studio doubles the effects and adds six instruments including the Pianissimo piano, and Memorymoon and ME80 synths.

For these awesome instruments alone, we do think that it's definitely worth the extra $89. While we have you, and to muddy the waters a little, there's actually an even cheaper version still, called Home Studio, which is just $49, and is limited to 16 tracks. However, as we say, you really should dig into your pockets and go for the rather more substantial packages: either in the form of the Recording or Pro Studio options, preferably the latter. You deserve it!

demo songs to investigate the extra features, plug-in effects, the editing (and the video options that I didn't really explore) and also the many instruments, which we'll turn our attention to now…

that will appeal to many. The instruments that have been with Mixcraft for longer are even more appealing. I love the ME80. It landed straight on a *Blade Runner* preset when I opened it and there's a glorious

With $1,250 of bundled extras, Pro Studio is already looking like the DAW deal of the century…

INSTRUMENTAL OPTIONS

A DAW lives or dies by its instrument collection these days and, as we've already discussed, Mixcraft has a long list of 21 bundled with it. The all-new Kastelheimer Veldberg XD is a rather dated-looking virtual analogue with basic controls: three oscillators and a filter and amp section. Fortunately, though, it sounds a lot more contemporary than it might look to some. There's a real attitude under its skin and

number of both presets and controls to play with, the latter being almost identical in layout, function and looks to the original CS-80 (which is no bad thing at all).

Another highlight is Pianissimo. This is a sample-and-modelled piano and is rather good. Okay, as you'd expect, it's not quite up there with the 200GB pianos you can get from the likes of Synthogy that I've reviewed, but it has a good range of 10 different piano presets – from Concert

THREE ALL-NEW PLUG-INS FOR PRO STUDIO 8

① KASTELHEIMER VELDBERG XD
This synth is all-new to Pro Studio, and you don't get it with the cheaper versions of Mixcraft. It's a virtual analogue that sounds better than it looks.

② VTD-42 VINTAGE PSYCHEDELIC TAPE DELAY
This delay is based around 60s tape delays and features all the tape wow and flutter, detuning, noise and crackle effects you could wish for.
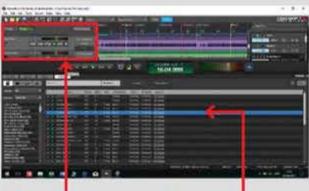
③ OMNI SAMPLER 8
Omni Sampler isn't new to Mixcraft – but version 8 of it is. It's a pad-based sampler that features up to 128 locations to put your samples in.

MIXCRAFT 8 PRO STUDIO OVERVIEW

1 SOUND TAB (AUDIO PART)
When you're dealing with audio, click on the Sound Tab so that you can enjoy an extensive list of audio-editing features. If you're working on a MIDI clip, three other edit options will be shown.

2 AUDIO EDITING
There's a surprisingly full list of audio-edit features, including slicing, warping, normalising and so on. It's here that you can access Melodyne, too (towards the left-hand side of the toolbar below).

3 SOUND TAB (MIDI PART)
We still have the Sound tab selected, but this time, we're working on a MIDI clip – so no audio editing, but three MIDI-edit options instead.

4 MIDI EDITING
These are Piano (where the piano keyboard shows on the left-hand side); Step and Score (as shown). All in all, that's a lot of editing per buck!

5 TRANSPORT CONTROLS
With both windows docked together, the Transport controls handily sit in the middle of the screen. You get the usual ones, plus a loop and metronome and recording punch-in.

6 LIBRARY
You can't argue with Mixcraft 8 Pro's library of sounds. There's literally something for everyone in there, laid out by category: from Dubstep to Country, and everything in between.

7 MAIN ARRANGEMENT
The main arrangement area is tracks top-to-bottom, song left-to-right, which is pretty standard stuff… but moving around it feels very slick.

8 MIXER
All sorts of options are available with the mixer. Undock it, increase its visibility by dragging up (at the expense of the arrangement), or lose it completely and do your mixing 'per track'.

Hall to Honky Tonk – together with a decent reverb and a solid number of parameters to edit, including Hammer Sounds, Sympathetic Resonance, Chorus and three parameters for EQ. Other highlights in the instruments folder include a

float your boat, there's always that colossal library of sounds. There's a vast number of different sounds in here, all neatly arranged by genre, some of which I'm slightly embarrassed to say I've never heard of. These genres go from 12-8 Blues right down

might like to experiment, mix some cowboys with zombies and have a good-ol' undead hoedown. As a music maker, it's always good to know you've got a wide selection of sounds at your disposal should you need them, whether to sprinkle into your own, usual, compositions or to use as creative inspiration for experimenting with other genres and moods. All the options are there for you, anyway, whatever music you produce or mix.

The VTD-42 is "full of revolutionary vibes and rainbow hypnotic and psychedelic smoke in the air"

cut-down version of Lounge Lizard, which is a lovely, swirly electric piano. There's also a decent 303 emulator in the form of the Alien 303 Bass Synthesizer.

It's a shame that some of these are stripped-down instruments, but there's a very good spread of sonic potential here – something for every genre. We've listed some of the other instrument highlights elsewhere in this review and if they don't

to Zombie Rock. There are beats, riffs, basslines, leads, individual hits, sound effects: an entire library – of course! The only criticism is that, of course, there's a whole load of sounds here you will never use if you primarily operate in a specific aural world or genre. If you're really into Zombie Rock, for example, you might never open that Country folder. But should I really criticise it for that? No, I shouldn't – you

EFFECTS AND MORE
As far as plug-in effects go, there are stacks on offer. The VTD-42 Vintage Delay is new for version 8 and a definite highlight for me. The original producer G-Sonique says of its creation: "Move with us to the beautiful age of 60s. Full of revolutionary vibes and rainbow hypnotic and psychedelic smoke in the air," and I couldn't put it better myself. There really is plenty to mess with your sound here (and mess it up, if you're not too careful – some of those dub delays can go on forever).

THREE OF THE BEST PRO STUDIO PLUG-INS

1 ME80
It looks like a Yamaha CS-80 – even down to the colours of the knobs, switches and faders – and best of all, it can even sound like one.

2 MEMORYMOON
The original Moog Memorymoog might be a classic synth, but the sounds that Memorymoon produces are not just vintage, they have a modern bite, too.

3 PIANISSIMO
A modelled and sampled piano, with 10 piano types and enough flexibility and controls to deliver a wide-ranging sound. Bellissimo!

Melodyne Essential is another new inclusion and seems to be making its way into many other DAWs, including Tracktion. Melodyne, in case you don't know, is an incredible piece of software, which can get you right into a mix and change pitches within it. It's particularly aimed at vocal correction. The full version, Melodyne DNA, allows polyphonic editing and while

– but you can still edit the parameters within its EQ, Reverb and Tube Amp modules, so, if nothing else, you can learn quite a bit about the subject when you get hands on and start tweaking for yourself.

CONCLUSION
As an update, version 8 of Mixcraft Pro Studio is well worth the leap. The

then I'd say yes. Pro Studio does everything a great, more widely used, DAW will do – and for such silly money, you could always give it a go and even if you don't get on with it or prefer to use another 'primary' DAW, keeping Pro Studio adds a bundle of instruments and sounds to your sonic arsenal that are at least worth the asking price. For this kind of money, you can't really go wrong. **MT**

Even if you don't get on with Pro Studio, the bundle of instruments and sounds is worth the money

Essentials doesn't, it can still offer a lot of very intuitive tuning solutions. Acoustica has inserted it directly into Mixcraft's clip sound-edit window – check out our Mixcraft overview on p78 to see this visually – to help save time while you're tuning, so that it really feels well integrated.

Of the 50-plus other effects you get, over 20 of them are exclusive to the Pro Studio version of Mixcraft. These effects include the incredibly useful iZotope Mastering Essentials. This is actually a really great plug-in and provides a gentle introduction to the world of mastering – an area that can often seem massively daunting, particularly for newcomers to the world of music production. The plug-in does your mastering with a wide selection of presets – there are 80-plus to choose from

automation features have been improved and the sound engine tweaked, but those extra plug-ins from iZotope et al certainly make it worth the upgrade price. However, this review has not just focused on the update – I've really tried to look at Pro Studio as more of an alternative to whatever DAW you are using, or maybe even the first DAW you choose to start making music on.

If you are in this latter category, then Mixcraft 8 Pro Studio really is a serious contender. The suite of plug-ins will give you any instrument you could wish for and the bundled high-quality sounds will give you enough of a base to make good music.

But is Mixcraft 8 Pro Studio a worthy alternative to whatever DAW you are currently using? Well, if you're a PC owner

MT VERDICT 9/10

+ Incredible features at this price
+ No nonsense, just gets on with the job without any fuss
+ Great bundle of instruments
+ The piano is particularly impressive and light on CPU
+ A very impressive library of sounds. Where exactly did all those genres come from?
+ Melodyne Essentials is great, too

– PC only
– Altering window sizes is sometimes not as intuitive as it could be

Mixcraft 8 Pro Studio is just that: a professional studio in a DAW. It has everything you need – and a lot more besides – to make any kind of music. And at less than 200 bucks, it's crazy cheap, too.

Alternatives

CAKEWALK
SONAR $499
Cakewalk's SONAR software has been around as long as most. This used to be PC-only and is fully optimised for

that platform. There are four versions in the line, including Professional that costs $199 and ships with a very impressive array of instruments and effects.

TRACKTION
Waveform £99-$200
There are, of course, all sorts of DAWs for all sorts of machines, and Tracktion Waveform will pretty much run on any

of them. At $200 for its most expensive version, it lacks the instruments that Pro Studio has, but has great effects, a very tidy interface and loads of pro features.

EXCELLENCE AWARD 10/10
MusicTech

DYNAMOUNT
X1-R £699

With DynaMount's pioneering robotic microphone positioning, our gear now responds intelligently to our commands. **Matthew Mann** is in position…

Contact **DynaMount** | **www.dynamount.com**

S tudio life is replete with daily challenges that can turn even the most hardened engineer grey. Finding the right mic for a young diva's lead vocal, pampering a guitarist's bruised ego when he can't quite nail the last bar of his solo, having to make a custom cable on-the-fly so the keyboardist's homemade synth can be patched in for recording… these are all challenges that can greatly disrupt the flow of a recording session. And if the engineer doesn't have the luxury of an assistant, the last thing they want to do is run back and forth between the control room and live room moving a microphone three quarters of an inch to nail that perfect tone before the guitarist forgets the part. With that in mind, Jon and Mike Russo at DynaMount have come to the rescue by developing a line of robotic assistant engineers to

Key features

- Remote Microphone Positioners
- Wi-Fi and USB control
- Four models in range
- Includes control app for iOS/Windows, used to customise and control RMP
- Keyboard hotkey control
- Fine-tuning 'nudge' buttons
- RMP works with most mics and attaches to all stands
- Horizontal, vertical or inverted mounting
- Save and recall placements as presets
- Multi-device presets

help out. They call them Remote Microphone Positioners (RMPs) and they are a huge time-saver in the studio.

THE NEW MODELS

The X1-R arrived well packed in a custom-cut foam cradle. The box contained the X1-R, the power supply with a 2.5 meter (8ft) cord, and a long Micro-B type USB cable. DynaMount was also kind enough to throw in the Accessory Pack (optional) which includes an On-Stage Posi-Lok Clutch for mounting the X1-R on an incline or even completely vertical; a Latch Lake 5/8″-27 Thread Extender for extending the clearance of the mic and cable; a Latch Lake Oversize Jam Nut for locking the DynaMount or microphone on the mic stand exactly where you put it, and a LyxPro right-angle XLR cable for mics that have

DYNAMOUNTS AREN'T LIKE ANY OTHER MACHINE

Let's take a look at the line-up in more detail:

V1-R Single Axis

V1-R Single Axis

V1 Single Axis £299. This one is the smallest member of the DynaMount family. It features a single-axis pathway allowing an engineer to move any microphone left and right (or up and down/in and out, depending on mounting). This is perfect for quickly moving the mic from one spot to another and adjusting to taste. The DynaMount website suggests that it could be used to quickly change microphone positions for different songs, or for changing phase alignment on a kick drum. The free DynaMount app even stores different settings as presets. More on that later.

V1-R Single Axis… with a twist £456. This is the same as the V1 above, with one

notable addition – a 360-degree rotating swivel. This allows the engineer to rotate the mic into numerous off-axis positions. Storing positions as presets allows you to do serious A/B comparisons without forgetting where that perfect tone spot was.

X1 Dual Axis £696. For producers who want to remotely control tone, but also want to control phase alignment at the same time… especially if you're using more than one microphone on the same source (guitar and bass amps, bass drum, acoustic guitar, etc).

X1-R Dual Axis and 360-degree rotation £699. This is the 'big daddy'

of the DynaMount line. Not only are you provided with dual-axis control of tone and phase alignment, you get the rotating microphone head mount for additional on/off-axis tone control. This bad boy is a recording/live sound engineer's dream. During this review, I'll be talking about the X1-R, because it's the one I received. Some features will be common among the DynaMount product line; some will be exclusive to the X1-R.

Echo-PT coming soon. This one is meant for broadcasters. It will enable them to capture the perfect sound in live events (sporting events and more) and change the sound dynamically as the action changes.

the cable jack on the bottom. I'd recommend getting the Accessory Pack regardless of which option you go for, as these pieces greatly extend its capabilities.

Connecting the RMP to the microphone stand was easy. They attach to standard microphone stands, so no proprietary stand is needed. Caution: the motors for the mechanism are a little heavy (especially on the X1-R), so make sure you put it on a sturdy stand. I knocked this one over almost as soon as I mounted it. Fortunately, there was no harm done… but I immediately transferred it to a sturdier stand with a larger tripod base.

The DynaMount app is available on the App Store, Mac App Store, Google Play and for Windows (downloadable from the company's website). It works on Mac/Windows PCs, tablets, and mobile phones. Installation of the app is quick and painless: the DynaMount website has step-by-step instructions and several tutorial videos, so you shouldn't be able to stray too far off the path in setting it up. Connecting the power supply, I was really impressed with the length of the included power lead. Measuring in at 2.5 metres (8ft), this thing was made with real-world use in mind. It's long enough that you can plug it in without

DO I REALLY NEED THIS?

Although Remote Microphone Positioners aren't for everyone, recording and live sound engineers who work on their own or need an extra hand moving mics in the heat of a gig will find the DynaMount line invaluable. They are perfect tools for the studio – and their robust build quality means they should be fine with the rigours of the road. It's a good idea to keep the die-cut foam for storage when not in use.

to the arrows in the app, which will allow you to control the same functions, so you never even have to look at the screen while moving the mic around. This lets you really focus on the sound.

In the top-right corner of the app is a gear icon. This is the options menu, which lets you customise your DynaMount experience. If you want to mount the device in the inverted position, the options menu will allow you to change the functions to accommodate that. Want to face the mic toward you? The options menu lets you adjust the controls in the app

out myself. Multiple mics on a singer-guitarist would be a breeze with this kind of setup. And if six presets aren't enough, the app gives you the ability to store Sessions as well (see boxout).

The DynaMount devices are very clever time-savers that will make your studio life much easier and more efficient. Not only can they be used for the obvious (guitar cabinets), but also for drum overhead placement, placing over piano strings, in front of a kick drum, and more. The DynaMount app is extremely cool and has the features most engineers would want in a device like this. Although it's probably overkill, it would be a bonus if there were more presets slots or more sessions for saving presets. This is certainly not a complaint; I assume this limit was set so as not to bog down your smart device's already limited storage.

DynaMount's support for so many different types of devices offers a lot of flexibility in the studio. Also, I've been told that DynaMount is currently working with a particular stand builder (Latch Lake) to develop the perfect stand for this line.

Finally, I think it's important to stress again that the beauty of these mic mounts and their associated app is that they lend themselves to experimentation. Close your eyes, listen, use the Blind Test function, experiment and your new robot pals can help you get the sound you're after before you ever even hit Record.

The DynaMount devices are very clever time-savers that will make your studio life much easier

necessarily needing an extension lead – to me, this screams forethought. Now just follow the steps on the website to get the app and the RMP talking to each other. The RMP calibrates itself each time it's powered up. Once it's finished, you know you can control your unit.

The app is simple and intuitive. When everything is connected and calibrated, you're presented with the main control screen. This screen shows a graphic of a speaker (so you know where your device is placed). There are white and blue arrows, which denote the directions you can move your device. In the case of the X1-R, you are presented with options for moving forward (toward the speaker) and back, left and right (starting from the centre of the cone and moving toward the outside), and rotating from left to right (to get that off-axis sound you might be after). You can connect loads of devices (10) and the app is smart enough to adjust itself to only present options if your device has them.

Clicking and dragging the white arrows moves the mic in the direction you want in real time. The blue arrows are nudge buttons. You can set these nudge buttons from one-degree increments all the way up to 20-degree increments. This is great for very fine adjustments to your position. There are also arrows below and on either side of the direction buttons for rotating the mic (in the case of the 'R' models). Additionally, there are computer-keyboard hotkeys tied

to enable that, too. It will even let you choose the desktop image you see from one of three speaker images and change the size of the speaker to reflect the situation. Just below the Options icon is an indicator light. This illuminates red when the device is moving and green when it stops.

PRESET IT AND FORGET IT

At the bottom of the screen is where the real magic happens. There are six presets you can use to store your favourite positions. Maybe you'd like to move the mic out toward the edge of the cone and then angle it 15 degrees off-axis, then, nudge it a little more to get just the right tone, now store it as a preset… Experiment with different placements and, when you find another placement you think you like, store this one, too. This makes it very easy to A/B your mic positions. Not only that, but say you want different tones for the verse and chorus of the song you're recording, with the touch of a button, the presets enable you to move from one stored position to another without ever having to guess where you had the mic to begin with.

Let's take that concept one step further. Let's say you have two DynaMount devices placed in front of your favourite guitar amp and you want to store both devices' placements together for instant recall. You can do this with Multi-Device Presets. This is such a cool feature that I wished I had another DynaMount, just so I could try this

MT VERDICT 10/10

+ **Versatile mounting options (horizontal, vertical, inverted)**
+ **WiFi or USB (position/orientation of mic)**
+ **Multi-device presets**
+ **Keyboard hotkeys**
+ **Blind Test mode**
+ **Built like a tank**

− **Heavy – make sure it's mounted on a robust stand**

Do yourself a favour and get a DynaMount… I'm pretty sure you'll wonder how you ever managed without one.

EXCELLENCE AWARD 10/10
MusicTech

INNOVATION AWARD
MusicTech

GENELEC
The Ones
SAM 8331 & 8341   £2,169 & £2,729 EACH

These two new Genelec monitors promise to redefine nearfield monitoring.
Andy Jones is the very lucky one who gets to check them out…

Contacts **Genelec** www.genelec.com | **Source Distribution** www.sourcedistribution.co.uk 020 8962 5080

B efore I get into Genelec's two new speakers, from a range called The Ones, there's no getting away from a quick discussion about their design and coaxial, point-source monitoring. These are, as you may have guessed from just looking at them, not your standard speakers and employ that coaxial (or single source) designs, so here's a quick overview.

You'll probably be aware that most monitors use two- or three-way designs; each of the two or three drivers covering different parts of the frequency range. With two-way designs, you get a woofer and a tweeter covering lows and highs and with three way, you get an extra midrange driver. With traditional speaker designs, these are placed apart, with one driver above the other; traditionally, the tweeter sits on top.

With coaxial designs, as with The Ones on test here, the tweeter sits directly at the centre, on top of the midrange driver and at the centre of the woofer so that the sound emanates from a single point source. The reasoning is that with traditional speakers, any crossover frequencies from the drivers cause phase issues known as off-axis colouration and this essentially forces the

Key features
SAM 8331

- **SAM 3-way monitors**
- **Frequency response: 45Hz-37kHz (-6 dB) ± 1.5dB (58Hz-20kHz)**
- **Maximum SPL: 104dB**
- **Drivers: 2x oval woofers: 5 1/8 x 2 5/8 inch and coaxial midrange/tweeter: 3½ / 3/4 inch**
- **Power: woofer 72W + midrange 36W + tweeter 36W**
- **Connections: 1x XLR analogue/digital AES/ EBU input, 1x XLR digital AES/EBU output, 2x RJ45 control network**
- **Dimensions (mm): 305x189x212**
- **Weight: 6.7kg**

listener to sit on a very specific sweet spot to avoid the effect. If the sounds emanate from the same on-axis source, these phase issues are reduced… so the big advantage is that listening sweet spot is widened, so you're not limited to having to sit in one exact position to monitor.

Several companies produce coaxial monitors including Equator Audio, Fluid Audio, PreSonus and Pioneer, with the RM series we looked at a couple of year back. Genelec has been leading the way in the design of these monitors, the 8351 being the daddy of this particular range.

However, even Genelec admits there are issues with the coaxial design. "Point source has also presented its own set of limitations when combined with superior coaxial designs," it says, "including limited frequency range, low SPL and uneven dispersion." With the Ones, however, Genelec claims to have overcome these issues and produced the world's smallest three-way coaxial monitors, the 8331 and 8341 on test here.

THE TECH (AND LOTS OF IT)
The advantage of these smaller monitors is obviously that they should be great for smaller

studio setups. With The Ones, you get another advantage, as the coaxial design allows them to be placed either horizontally or vertically, so with that, widened sweet positioning flexibility really is at a maximum.

Small doesn't mean light, however – these are solid, heavy, well-built monitors with the bass drivers mostly covered and protected by an aluminium chassis. What small does usually mean is less bass, but Genelec has this covered with some great design technology – old and new. So get ready for technical jargon – there are plenty of trademark terms coming up! However, do try and bear with me, because the design technology of The Ones is crucial to just about everything about them, and ultimately, of course, their sound, which I will (eventually) get to.

So first up, the front of both speakers is a solid baffle called a Directivity Control Waveguide (DCW), with the coaxial midrange driver and tweeter sitting in the middle. This Waveguide covers the woofers – and note I say that as a plural. Initially, the three-way design is slightly confusing, as it incorporates a dual woofer system called Acoustically Concealed Woofer (ACW) which radiate sound through slots located at either end of the monitor. The clever bit is that, and I'll quote Genelec here: "When two woofers are used, separated by a distance, the system of two woofers behaves acoustically like one giant woofer spanning the distance between the two woofers." What this means is that it's a dual system that acts like a single woofer so, when combined with the tweeter and midrange driver, makes it effectively a three-way system.

Confused? Don't be. What it adds up to is you get a larger woofer than you'd expect from such a small speaker in both the 8331 and 8341, so small doesn't mean lightweight in the bass department.

The Acoustically Concealed Woofer design means the whole of the front of the speaker can be that solid Directivity Control Waveguide mentioned above, one giant smooth front surface that Genelec claims offers excellent directivity and imaging. This

technology is used in other Genelec monitors and was first developed in the 80s. The theory is that the larger this smooth surface area, the more control you have over the directivity, and those smooth and rounded edges – as part of what Genelec calls the Minimum Diffraction Enclosure

of all the technologies in one is what The Ones are all about. Putting the various techno babble aside, what we essentially have here are compact speakers with better bass specs than you'd expect, better imaging and a larger sweet spot.
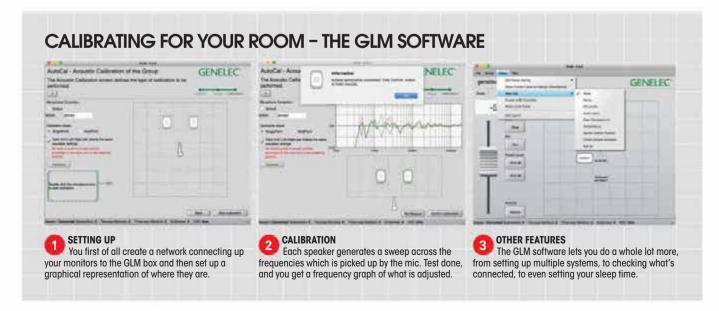
Techno babble aside, what we have are monitors with much better specs than you'd expect

(MDE) and what you'll find on pretty much every monitor that Genelec makes now – help reduce secondary reflections and flatten the overall frequency response.

Like I say, some of this technology has been inherent in Genelec speaker designs for some years and is not new to The Ones, but the coaxial approach and the merging

THE SAM PART

There's more tech to cover as The Ones also have some other great features up their sleeves. You'll note these are called SAM monitors. We first covered Genelec's Smart Active Monitor (SAM) system with our review of the 8320A and 8330A monitors last year. Again, then, this isn't a new

CALIBRATING FOR YOUR ROOM – THE GLM SOFTWARE

1 SETTING UP
You first of all create a network connecting up your monitors to the GLM box and then set up a graphical representation of where they are.

2 CALIBRATION
Each speaker generates a sweep across the frequencies which is picked up by the mic. Test done, and you get a frequency graph of what is adjusted.

3 OTHER FEATURES
The GLM software lets you do a whole lot more, from setting up multiple systems, to checking what's connected, to even setting your sleep time.

technology, but The Ones feature it – hence the 'SAM' in their names – and it is very cool. It consists of a Genelec Loudspeaker Manager (GLM) software (free to download) and a GLM User Kit (sold separately for £319). This kit has a GLM adaptor, a measuring microphone, a USB cable to connect the adaptor to your Mac or PC and a network cable to link the monitors to the adaptor. Together with the software, the kit enables you to tune parametric notch and shelving filter parameters in The Ones according to your studio environment. The monitors can be tuned to make up for any colourations in your room acoustics you might have – self-help speakers, if you like.

You set the monitors up as you would normally expect to – the equilateral-triangle method is a good place to start – and then run the calibration software. The software is very easy to use. You'll need to get a network set up via the GLM adaptor and then the software picks up the monitors and asks you to virtually place them on a grid to give an indication of their location within your studio.

Then you run the calibration, which takes around a minute to do, during which time each speaker broadcasts an audio sweep through the frequency range – one that scared the s*** out of me when it first did it – which is picked up by the

Key features
SAM 8341

- SAM 3-way monitors
- Frequency response: 38Hz-37kHz (-6dB) ±1.5dB (45Hz-20kHz)
- Maximum SPL: 110dB
- Drivers: 2x oval woofers 6 5/8 x 3½ inch and coaxial midrange/tweeter 3½ / 3/4 inch
- Power: woofer 250W + midrange 150W + tweeter 150W
- Connections: 1x XLR analogue input, 1x XLR digital AES/EBU input, 1x XLR digital AES/EBU output, 2x RJ45 control network
- Dimensions (mm): 370x237x 243
- Weight: 9.8kg

microphone so that automatic EQ calibrations can be made to adjust their responses for your room. It's a very simple operation and a very transparent process, although you might hang your head in shame about just how bad (acoustically speaking) your room is – it's like getting scolded by a USB-software teacher.

Handily, around the back there are dip switches to make manual adjustments, but the software is so easy to use that I'd urge you to try it. It's currently at version 2 (a great improvement over v1, I hear), with v3 in public beta.

SWEET SOUND
Sound-wise, I'm not going to talk (that much) about huge revelations in mixes or new detail in various frequency ranges. That's almost a given after all those acronyms. No, what's immediately striking is that sweet spot… or lack of it. We're talking about a wide sound stage that is beautiful and accurate, but across a much wider space for the listener.

Over years of testing monitors, I do seem to find myself ducking, crouching and swinging left and right to find 'that' sweet spot. On listening to these (I started with the 8341s), I'm immediately transfixed by the sound, even though it's transparently obvious I'm not sitting in the (traditionally) right position. They sound that

GENELEC THE ONES OVERVIEW

1 SOLID ALUMINIUM BAFFLE
The Directivity Controlled Waveguide is a solid, smooth baffle. As well as aiding directivity of the source sound, it also helps with imaging.

2 SLOTS AT TOP AND BOTTOM
These are for the dual bass setup, two drivers that sit beneath the DCW. They act like a larger woofer covering the surface of the speaker.

3 REFLEX PORT DESIGN
Within The Ones there is a long, curved tube that terminates at this rear vent. Again, this is a refined technology designed to minimise port noise and increase bass articulation.

4 COAXIAL DESIGN
The midrange driver and tweeter sit in the centre on top of one another and between the dual woofer design, so that sound effectively emanates from a single-point source.

5 HORIZONTAL OR VERTICAL
The coaxial design means the speakers have flexible positioning and the removable rubber base can be moved when the speaker is used horizontally. It can also be adjusted to tilt the speaker.

6 MANUAL AND AUTO CALIBRATION
Around the back of the speakers you get dip switches to make manual adjustments, but the network connections are also there for auto calibration via the GLM software, and that's why these are called Smart Active Monitors.

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good, or should I perhaps say 'as good', in a wider space. Okay, we're not talking beyond more than a 15-to-20 degree frontal angle, but you certainly don't feel confined to 'that' listening position.

How useful this widening of the listening position is, is open to debate. In a solitary listening environment, you'll be statically placed (or at least used to a certain sitting position) in that listening zone for most of your mixing, so maybe this extra breadth won't be such a plus, but for multiple listeners and those that like to move in their mixing rooms, these are astonishingly flexible. Not so much vertically, it has to be said – it's on the horizontal axis where these work best.

The other thing that is obvious after extensive – and I mean really extensive – listening tests is that these speakers sound 'broad'. I'm not just talking about the

differently sized monitors. In this review, I'm testing two sets here of course, the smallest and the medium-sized models in The Ones range. The larger 8341s were first up, so how do the smaller 8331s compare? To put them to the test, I compared them with my reference monitors and also directly next to each other.

The specs and the physical size tell me that the smaller 8331s should deliver less bass and volume – that is what you'd expect, after all. But if you've read this far you'll understand that The Ones have been designed, and I mean *designed* in italics, so they're not necessarily going to do what you expect.

On their own, the 8331s are equally as impressive as the 8341s. It's that word 'broad' again. Broad in scope, in listening spot, in everything. Something as small as these really should not be as broad. They

lot to cover and you have to appreciate the years, decades even, of R&D that have gone into these speakers. However, I don't want all of those acronyms – and Genelec does use far too many, sometimes seemingly to me using two for one technology! – getting in the way of the message. And that is all of that research, all of those years of refining that seem to have led up to the release of The Ones, were most definitely worth it.

It's likely that there are no better monitors of this size, it's as simple as that. They're compact, flexible, you can put them anywhere (within reason!) and they'll sound amazing, and if they don't at first, then they'll adjust themselves so that they do! It's pretty hard to stop using exclamation marks in a review when you are listening to and using such groundbreaking technology, so I do apologise for those and for digging deep into the technology.

But The Ones have effectively taken all the best bits from Genelec's history – and there are a lot of amazing bits of that to choose from – and moulded it all into a speaker range that is second to none. The only question now is: where does Genelec go from here, as these are, without doubt, The Ones… 🔴

These speakers sound 'broad'. Not just the stereo specs, but the other dimensions, too

stereo specs, but the other dimensions, too – think up down, forwards and backwards. I was playing my own mixes and favourite music with huge dynamic ranges through these speakers at volume, and they coped with everything, translating and transferring my own (perfect) music back to me at big volumes with astonishing ease. Some of my huge, and I mean HUGE, string arranging, tear-jerking soundtracks were just thrown back at me, almost with a shrug and a 'what else have you got' nonchalance.

What was also extremely interesting was returning briefly to the GLM software. There's a Bypass switch which removes the effect of the auto calibration and, during my tests, I would occasionally hit it to compare just how the speakers would sound in my room without calibration.

It's fair to say I was expecting not to be able to hear that much difference, but on every occasion, it was obvious. Hitting the Bypass would lift some of the mids, restoring the calibration would smooth the response back out. It was just as you'd expect, proving firstly, that it does work; secondly, that my ears work; and thirdly, that my room acoustics need work.

Next up – and almost the final call – is the difference between these two

really are little beauties and, next to my reference monitors, sounded far superior in terms of having a smoother range, but partly of course as they'd been calibrated and my references speakers haven't.

Lastly, I put them directly against their bigger brothers by simply having one as a left and one a right speaker – not a realistic setup and the GLM software wouldn't let me set this unlikely scenario up within its digital environment, the 8331 not being picked up as a partner. That's understandable: why would anyone do this? But I wanted to compare them directly by fading one up and then the other, just to see what differences there were, so did this in a non-calibrated, purely old-school analogue environment. I picked up few differences, apart from the pure output power of the larger speaker – so those 8341s will suit a larger studio. The 8331s performed just as admirably. I thought I could pick up less bass, but it's a situation where I think I'm telling myself that because that's what I should be hearing. If it did lack it, it was negligible.

COULD THESE BE THE ONES?
I've focused a lot on the technology behind The Ones, simply because there is a

MT VERDICT 10/10

+ **A peak of studio monitoring technology**
+ **The GLM software is a lot easier to use than it should be…**
+ **…and yields great results**
+ **Incredibly solid build**
+ **Amazing detail and soundstage**
+ **Flexible positioning and will suit all studio sizes**

– **Price is high (but not really, given that the tech and history behind these stretches way back)**
– **GLM kit sold separately**

The Ones have been a nightmare to review, as there is so much technology behind them to impart and explain, but the bottom line is that Genelec has refined, engineered and processed its history into a range of incredible speakers that will set the standard for years to come.

Alternatives

PIONEER
RM Series
from £429 each
There's little out there to compare with The Ones, and these are an alternative only if you want a cheaper way to get that point-source co-axial design. They're only two-way speakers, too, but share the rigid (and heavy!) design. pioneerproaudio.com

PMC
twotwo6
£4,499 a pair
These deliver an incredible sound stage and accurate response. I owned a set for a couple of years, but had to sell them to buy a bathroom. They're incredible speakers and right up there (in price too) with The Ones. pmc-speakers.com

CHOICE AWARD 9/10
MusicTech

MASTERING THE MIX
Reference £49

Mastering The Mix's new plug-in offers innovative tools to help you compare your mix to your references, but how useful are they? **Alex Holmes** finds out…

Contact **Mastering The Mix** | www.masteringthemix.com

Trusting your ears is key, but using references can be a great way to hone in on where your track might be lacking. There are times, however, when you reference a track and feel your mix is close, but isn't sounding as good or as loud. Reference from Mastering The Mix follows on from previous metering plug-in, Levels, offering a comprehensive A/B toolkit and some unique features for a better insight into the differences between tracks.

The top half of the plug-in has similarities to Sample Magic's Magic AB, which is our current method of referencing multiple tracks. You can load up to 20 references, and a waveform view allows you to easily highlight and jump between multiple loops when using Free mode. However, the lack of a zoomable waveform can make it tricky to set accurate looping points. There's also a Mirror mode to sync the playback with the timeline of your DAW, which is especially useful when you want to compare different versions of the same track, and as a great timesaver, there are four buttons used to automatically align or volume-match either just the current or all the reference tracks to your mix. We also have two large buttons to switch between the original and the reference (which can also be done with a shortcut key), meters with peak and LUFS values, and a gain-adjustment slider.

Key features
- **Track metering and referencing plug-in**
- **Load up to 20 tracks, sync to DAW or Free mode**
- **Auto align and volume match**
- **LUFS and Peak meters**
- **Trinity display with up to 5 bands and band solo**
- **Compare volume, width and compression of each band**

HOLY TRINITY
Where Reference really differentiates itself is in the third section, with the Trinity display. Here, you can select and solo up to five bands, so you can hone in on comparing a particular section of the spectrum. A white line across each band moves up or down, to indicate whether your reference material is either louder or quieter in this region, giving you instant feedback on whether you need to add or reduce the bass, mids or tops in your track. Similarly, meters above show how much stereo width there is in each frequency range, giving you extra information to consider when adjusting your pans and stereo processing. Finally, there's a unique display that shows dots moving either towards or away from the white line to indicate the short-term dynamic range and

whether your reference track is more compressed or less compressed in this region. If the brightness is low, this indicates that you have a similar amount of punch and compression. In practice, we found the meters easy to get used to and read, and the well-written PDF manuals give tips on how to reference both for mixes and when checking masters to originals. The only essential feature currently missing is a mono button, which is useful for checking mono compatibility and also how the spectrum sounds without the distraction of stereo.

THE REF'S DECISION IS FINAL
Having extra insight into what makes one track sound different to another is a useful and powerful tool. Our current monitoring and reference chain inside Logic consists of four separate plug-ins including a spectrum analyser, loudness meter, EQ (used to solo specific bands) and a referencing plug-in. We're happy to say that Reference will be replacing all of these, with the exception of the Spectrum Analyser, which is still useful for checking specific frequencies. *MT*

MT VERDICT 9/10

+ **Innovative, useful metering**
+ **Crisp and easy-to-read GUI**
+ **Lots of tools/meters in one plug-in**
+ **Low CPU consumption**

− **No mono mode**
− **Can't zoom waveform to set accurate loop points**
− **Licence only for one machine**

An excellent, well-designed plug-in that offers unique and useful visual insights into your mix and references.

Alternatives
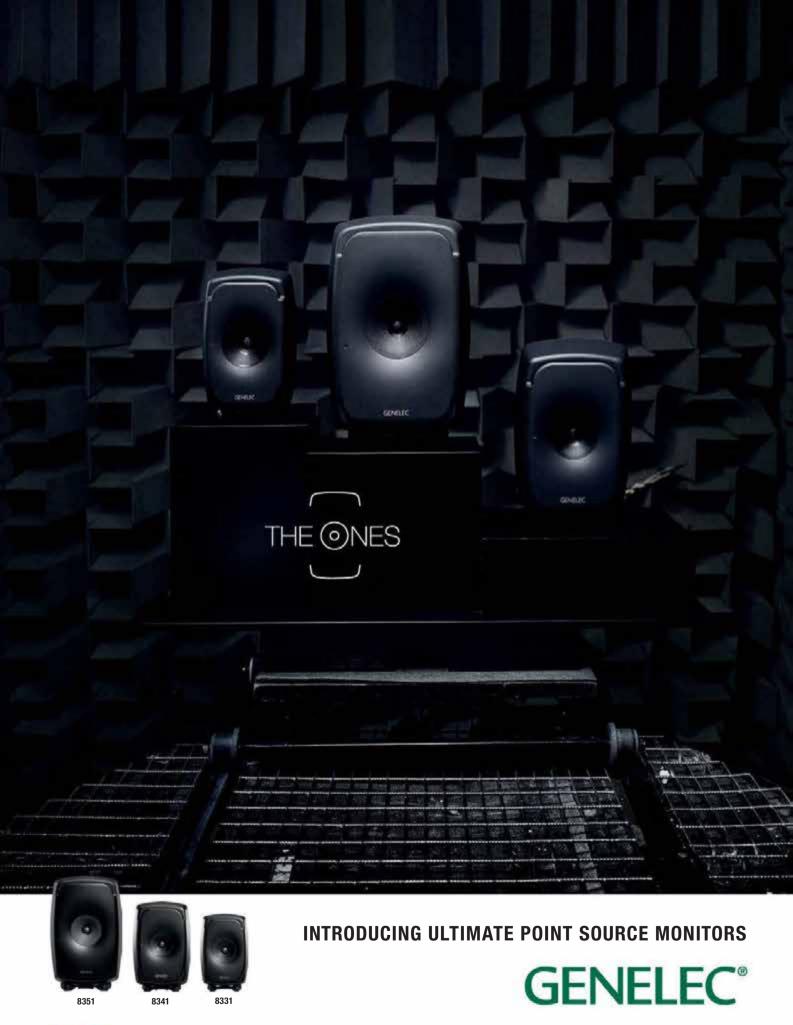
SAMPLE MAGIC
Magic AB £49
This has 9 track slots and a clear, zoomable waveform view. There's also MeldaProduction's MCompare (€59) that

has M/S monitoring, a Blind Test mode and can compare different stages of your mastering chain. However, both of these lack some of Reference's metering features.

EXCELLENCE AWARD 10/10
MusicTech

SONARWORKS
Reference 4 FROM €99

The updated Reference from Sonarworks aims for an unerringly accurate sonic picture of your speakers and room. **Alex Holmes** listens closely…

Contact **Sonarworks** | www.sonarworks.com

We reviewed the Headphone version of Sonarworks' Reference 3 software last year, but it also offers a similar version for speaker calibration. Both were previously only available in plug-in format, but Sonarworks listened to user feedback and added the Systemwide app a few months back, which allows you to run all your system audio through the software without the need for a plug-in host. Now we have Reference 4, which simplifies the product line to simply two versions; the Headphone Edition that comes with the plug-in and Systemwide app, and the Studio Edition that comes with the plug-in, Systemwide and also the room-measurement software.

First things first, let's recap on the Reference plug-in software. The Headphone Edition features a long list of averaged calibration files for various headsets, which load in a specific frequency curve to help give the smoothest and flattest response. The old profiles have been updated in version 4 using new techniques to give even better accuracy and the supported models have been increased to 101. You can also send off your own headset for measurement to get a unique reference file that factors in differences between the left and right sides, meaning you can guarantee a flat response and make mix

Key features
- Speaker and room measurement and correction software
- Plug-in for DAW, standalone for system audio
- Measurement software to measure room
- Linear, minimum or mixed-phase correctional EQ
- Crisp GUI with calibration curves
- Built-in speaker and headphone simulations
- €99 Headphone Edition; €249 Studio Edition; €299 Studio Edition and mic; €19 Upgrade

decisions with more confidence. Plus, if you're collaborating with someone who also has Reference but has different cans, then you can be sure that you're hearing the same things.

MADE TO MEASURE
Moving on then, the Speaker version (Studio Edition) of Reference is pretty much identical to the Headphone version, but you also get a separate application to measure your room. For this, you will need a high-quality, omnidirectional condenser mic, such as a pencil mic, and as you want the data to be as accurate as possible, you'll ideally also want a calibration file for the specific microphone that can be loaded in before the process begins, although this isn't essential. If you don't have a mic, you could consider adding one for €50, which comes with a USB stick containing a specific mic-calibration file. You then go through the measurement process, which involves setting the speaker volume and recording level, then taking a large number of measurements around the rough area of the listening position. The whole process only takes around 10 minutes and graphical aids showing where to position the mic make things easy to follow. You need a fairly loud volume coming out of the speakers in order to excite the room and get strong measurements, so it's advisable to have some earplugs at the ready. The software then spits out a calibration file, which is loaded into the plug-in or Systemwide app.

Now, with the curve loaded into the software, you can see exactly how the frequency spectrum looks at your listening position, via your specific speakers and room. It's quite fascinating, and the results of the inverted EQ curve can be heard instantly. On our setup of Focal Twins and a KRK 10s sub, there was a bump in the low subs, and another around 150-250Hz, which made kick drums especially prominent in the mix. The plug-in features a DRY/WET dial, that controls just how much of the calibration is used, and at 100%, these bumps were flattened to less than +/- 2dB, with the everything above 500Hz pancake flat. We A/B'd a few different mixes and found the

low end in particular to be much, much tighter, plus elements in the stereo field felt more defined. When playing basslines, the different notes up the scale had a more even volume, which translates into much easier mixing of the low end. We've actually been working with this setup for over six months, and over time, we decided to dial the amount down to 70%, to allow just a little extra of the pleasing character of the Focals through. We also did the same when using the headphone plug-in, as at times, if felt almost unnatural to have a completely flat spectrum, but you'll have to experiment with your setup.

With the calibration file in the plug-in, you have a number of ways to control and view the output. In the main window of the GUI, you can choose to show or hide a

made so it can be loaded in the background at startup. You can load in different calibrations, such as your speaker setup or a couple of different sets of cans, and quickly select each from a drop-down menu. This means QuickTime, iTunes and any other listening software is also fed through the calibrations, and for DAW use, you simply select Systemwide as your output. This was previously a €49 upgrade.

Now that we've been using Reference for an extended period of time, we struggle to imagine life without it. It's a fantastic way to help you improve the sound of your room, your speakers, and subsequently your mixes. If you already have the full V3 package including Systemwide, then version 4 may not warrant an upgrade in its current state. However, Sonarworks has laid

With the plug-in version and Systemwide app, it's now easy to tune your ears to your setup

number of different calibration curves, such as the original recorded response of the speakers, the inverted calibration curve, the resulting final output, or the phase response. If you click on the Advanced section below, you can actually choose the filter type of the EQ, with the main new feature of version 4 being that you have a zero-latency option for live recording. You can also choose linear phase for high-quality, phase-free results, but with added latency, or Optimum that uses a mixed phase mode, for a good middle ground.

Other options include an overall bass boost or EQ tilt, a mono mode, a switch that automatically ducks the output by the required amount to avoid clipping after the curve, and an adjustment to the left and right levels and delays to optimise the listening spot. There's also a section that simulates the output from two sets of famous speakers and four sets of headphones. Sonarworks has promised extra simulation profiles are coming in 2018.

The plug-in version needs to be loaded into a DAW or plug-in host to work, and bypassed when bouncing a mix, and (aside from some complex Soundflower workarounds), you can't listen to your system audio or sound from other applications. That's where the Systemwide app comes in. This is essentially the same piece of software as the plug-in version, but

out a six-month development roadmap that includes a more accurate speaker-measurement method, web-based licensing system, extra simulation profiles and an overhaul of Systemwide.

Ultimately, with both the plug-in version and Systemwide app, it's now easier than ever to start tuning your ears to your setup, whether writing, recording or listening to your favourite tracks. MT

Alternatives

IK MULTIMEDIA
ARC 2.5 €239
For room calibration, the main competitor is IK Multimedia's ARC 2.5, which has been around for a while. The latest update includes a

high-quality MEMS mic that can be used to create an accurate room snapshot.

KRK
Ergo £150 (approx. second-hand)
There's also the KRK Ergo, which comes in a neat hardware box with multiple connections, a large volume dial and a

measurement mic. This has been discontinued, so you'll have to hunt on eBay.

QU-BIT ELECTRONIX
Pulsar £271

The latest module from Qu-Bit Electronix has some seriously stellar credentials. **Dave Gale** heads into the cosmos to examine some starbursts…

Contact **Qu-Bit Electronix** | www.qubitelectronix.com

To say that Qu-Bit is on a roll could be considered something of an understatement, and when faced with this latest Eurorack offering, it's very clear the company is aiming high. Starting with the product description: "Pulsar is a burst generator inspired by stars that output beams of electromagnetic radiation in space. Once keyed, a stream of triggers is dispersed across four outputs." It feels to me like someone at Qu-Bit may have been inspired by Stephen Hawking's *A Brief History Of Time*, as they go on: "Environmental factors like absorb and gravity alter the behaviour of each burst and affect its movement through time. Eight unique dispersion modes provide a range of stream types, including Euclidean, binary, random, and fractal. Galactic clocks for the Eurorack system." So having cleared that up, let's attempt to observe the Pulsar from back down here on Earth.

BLACK STAR

Across the bottom of the Pulsar are four outputs, each an independent channel that offers the same functionally in each case, with a fifth socket offering Clock output. The Pulsar will use its own internal clock, but can also be clocked to an external source – at which point, the clock

Key features

- **4-way unique output burst generator**
- **8 dispersion modes**
- **Clockable internally and externally**
- **Current draw: +12v = 125mA, -12v = 2mA**
- **Width: 14HP**
- **Module depth: 34mm (Skiff friendly)**

output rather usefully transforms into a Clock Divider/Multiplier.

The four main outputs essentially emit gate triggers, with the mode of 'burst' being assigned from the Mode pot, with further tweaking available in all cases, via the deliciously inviting Master Encoder, which sits right in the centre of the module, surrounded by a circle of LEDs. At the start of each burst, a single rotation of the LEDs takes place, with triggers occurring with each illuminated point on the LED circle. The LEDs also change in colour, according to the selected channel, each of which has its own colour assigned. This can cause a small amount of confusion, as it's not immediately obvious which colour relates to which channel until the lights start to flash – at which point, the circle of LEDs will match the corresponding colour of the LED residing next to the output socket.

It's a classic case of 'once you've got your head around it, it makes more sense', as is the case with the selection process relating to the mode of burst, which is indicated via the quadrant of the Master LEDs, which are illuminated. Once you do have a basic grasp of the operational side of Pulsar, it starts to deliver: in fact, it does so in such a way that it's a pretty unique piece of kit, lending itself to further extend some of the functionality previously seen in Qu-Bit's Nano Rand.

The functionality of each trigger burst can be switched between four main burst types, namely Sequential, Euclidean, Binary and Random. These can then, in turn, be altered in a number of ways, dependent on each mode type. This includes manually switching bursts on and off, or in the case of the Binary and Euclidean modes, altering the dispersal pattern, with all of this manual control also available to CV control, with onboard attenuation.

In all cases, some lovely patterns are available, but they do tend to have a regularity of step and rhythm – which is what you would expect – so Qu-Bit has placed a tempting Gravity button on the front, which, much like its counterpart on terra firma, will have the burst

DO I REALLY NEED THIS?

If you like rhythmic triggering and feel that your modular is a little too metronomic, this is worth a look. There's plenty of scope for interesting drum triggering, but moreover, it can be used in conjunction with devices such as envelopes to trigger and get notational movement, with the added use of a quantiser. I can see this having uses in so many genres of electronic music, from ratcheting in more classic prog-rock, through to finding a use in spacious and more ambient music.

escalating and accelerating before an inevitable stop. This quickly became something of a favourite, with considerable possibilities for interesting movement; especially when you consider it's possible to have four of these simultaneously, all with different timings or burst types, and all available to trigger from an external jack point… although this is global, and not on a per-channel basis.

Applying the four channels across the full modular, it's easy to get some great rhythmic effects going very quickly. Locking to a central clock, it's also easy to place some of the timings in just the right place, to get elements to sit just-so, on the back of the modulars timing. It's more than just polyrhythms here, which would indicate a sense of common regularity.

With the ability to tweak timing and burst on each channel, things can get pretty complex, and then there's the glorious Gravity, which just adds a nice

sense of movement, akin to the classic `bouncing ball' available through Serge-like devices.

FINAL OBSERVATIONS

This is something of a unique module, which offers plenty of scope for interesting trigger-based content, although in many respects, it's a shame that there is no linear CV-based content, as I would love to be able to control pitch directly from the Pulsar, in tandem with the rhythm bursts. Also, it's a little fiddly to use at first, especially if, like me, you tend to dive in before reading the manual.

I found I needed to do a reset, after my initial noodlings, as my Eurorack and I ended up in an uncharted sonic sector, entirely lost in space. This is testament to how much the Pulsar delivers, as it is built on layers, but thankfully, these layers are mirrored, so can be applied on a per-channel basis.

Finally, I must add that, in keeping with Qu-Bit's established aesthetic, the form factor is larger than other modules, but all the better for it in my view, and built to last – with sturdy attention to detail. It's also available with a black or silver panel, with the black panel possibly showing the LEDs to greater effect.

Overall, Qu-Bit's Pulsar is a very unique take on the trigger idea, and personally, I love the space analogy, whatever you make of it. Strangely, given the inclusion of gravity, this module is far from down to Earth – if anything, it's more inclined towards looking to the stars… ▣

Alternatives

PITTSBURGH Modular Game System £256
is packed with 6 modes of operation, including step programmability and various modes of

random CV/Gate generation. Both flexible and useable. The classic 80s game styling makes it an especially appealing bit of eye-candy.

MUSIC THING MODULAR Turing Machine Mk2 £76+
The ever classic Turing Machine module, now in its Mk2 incarnation, is

sold new as a kit, however plenty are available pre-built through the usual on-line auction sites. Look for the expanded versions.

MT VERDICT 8/10

+ **Beautiful design**
+ **Usual Qu-Bit build quality**
+ **Excellent rhythmic possibilities**
+ **Multiple-channel operation**
+ **Internal and external clocking**
+ **Can be a little fiddly in operation**

– **Channel assignment could be clearer**
– **Trigger based only**

This is another highly desirable module from Qu-Bit, which is pretty unique, and will add some wonderful movement to any modular.
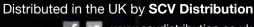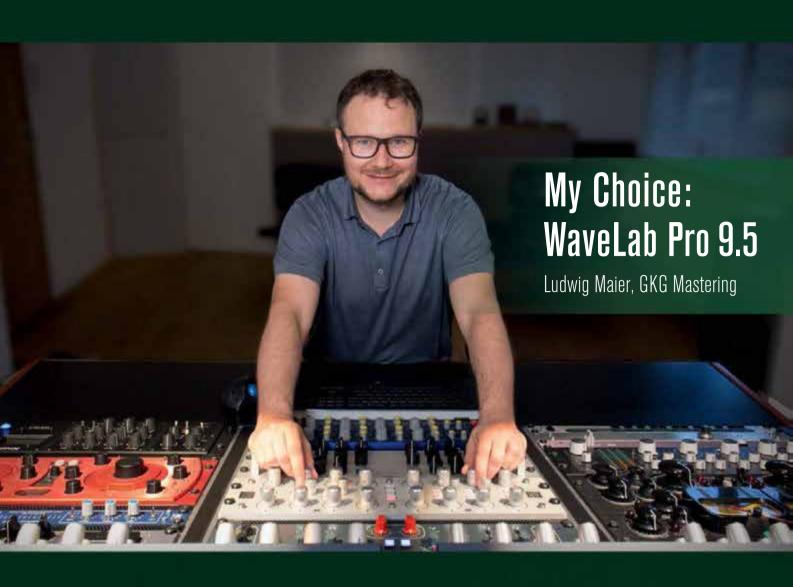
ROLI
Seaboard Block £279

ROLI's Seaboard Block brings the company's two lines of hardware together. But does it provide the perfect mobile music solution, too, asks **Andy Jones**?

Contact **ROLI www.roli.com | Sound Technology www.soundtech.co.uk 01462 480 000**

A few issues back, I looked at ROLI's Blocks, a set of musical devices that act as modular music makers and are designed to open up the world of music making to the masses in a well designed and ingenious way. I'll talk more of those shortly, as Seaboard Block is designed to integrate with that system, but it also derives from the other ROLI hardware strand, the Seaboard RISE.

RISE, for the uninitiated, is a keyboard like no other. It features Keywaves, which replace standard keyboard keys. You get 12 per octave as on a regular keyboard and you can even play them like a regular keyboard – but you'd be missing out on a few extra dimensions, because what makes RISE stand out is the *way* you play it. With 'Five Dimensions Of Touch' you can Strike, Glide, Slide, Press and Lift keys, adding several new layers to your playing and performing.

Strike is like hitting a regular note with different velocities; Press gives you aftertouch; Glide left

Key features
- **2-octave, 5D mini controller**
- **Connectivity: USB-C port (MIDI out and power). Full MIDI over USB and Bluetooth, 4 DNA connectors**
- **Bluetooth range: 15m**
- **Battery life: 10 hours (4-hour charge)**
- **Dimensions (mm): 282x25x141**
- **Weight (g): 650**

and right allows glissando changes between notes; Slide up and down lets you assign parameters to how you move your fingers up and down; and finally, Lift Off can change another parameter as you release the note.

With these dimensions, sounds can be warped, pitched, and moulded in pretty much any way you like; and these sounds come from either the Equator soft synth, which runs as a regular plug-in, the ROLI Noise app (one that runs on iOS via Bluetooth, if you wish) or any compatible soft synth. By 'compatible', we mean that it has to respond to these extra dimensions via MIDI, so has to be MPE (Multidimensional Polyphonic Expression) compatible.

So, the Seaboard concept allows you to create very different-sounding performances or incredibly real acoustic sounds (you should hear the saxophone in full flow, for example), all played on a keyboard-type instrument.

Then there's ROLI's Blocks. This more mobile concept adds the multi-dimensional touch philosophy to a wireless modular setup that you configure yourself. There's a Lightpad Block, the central performance module; a Live Block, also aimed at the performer; a Loop Block, aimed at the producer and a Touch Block, which allows you to edit the amount of multi-touch expressiveness. Again, all of these Blocks use the Noise app as their sound source, which has two modes: Song View, where you play and record loops to make songs, and Instrument View, to play individual sounds across four tracks to make music (drums, bass and two synths).

The new Seaboard Block, then, is obviously part Seaboard and part Block and should bring the Seaboard concept to a more mobile environment for a lot less cash. I'm looking at the unit in three different ways, then: as a cheap, mobile Seaboard, as a controller and as part of the Blocks setup.

WHAT'S IN THE BLOCKS?
After registering, I was presented with a bundle of download software including Tracktion Waveform – the rather excellent DAW I reviewed last issue.

The ROLI software includes a 2GB suite of 200 extra sounds for Equator (and the Equator software itself) and the Blocks Dashboard software, to configure your Blocks and Seaboard Block into whatever control setup you want.

I first tested Seaboard Block as a kind of cut-down, mobile Seaboard, using it as a super-expressive controller that you could take on the road. Used in this context, Seaboard Block is as impressive as the originals. I reviewed two full-size Seaboards (the 25 and 49) and, while obviously smaller, this unit doesn't actually feel that truncated. The keys are very playable and the unit feels as solid, as squidgy and as well built as the grown-ups.

If you were at all attracted by the original Seaboards for all of their expressive control – but were maybe put off by the price – £279 gets you a very capable and portable version.

Next up, you can use Seaboard Block with your DAW as a regular controller keyboard. I had it up and running with the full version of Equator in no time, so was getting maximum expression out of that

DO I REALLY NEED THIS?

You'll need some kind of Seaboard if you want to explore all of the sonic performance options that MPE-based instruments offer, and this is the cheapest. If you just want to play regular synths, you can make do with a regular keyboard, but these things do push a boundary in sound well worth exploring.

and, obviously, all the dimensions are performed and recorded, too.

Anyone who read my original review of the Blocks system might well recall that I was a little too excited about their potential as DAW controllers. ROLI has designed them so you can reconfigure them into MIDI controllers for DAWs, so you could, for example, use a chain of the Lightpads as fader controllers. It's an expensive solution, but a bloody cool-looking one. Seaboard Block obviously fits well with that concept as well, because it can sit within the Blocks environment as the keyboard part.

It's part Seaboard, part Block, so it should bring the Seaboard concept to a mobile environment for much less cash

MPE-based software but also playing it as a regular controller with my other non-MPE soft synths (although obviously not getting the extra expression from them).

Keyboard players might need time to get used to the extra dimensions at their fingertips here – it's easy to over-glissando, for example – so, as ever with a Seaboard, I'd urge them to give one a go before buying, or allow some bedding in time when learning to use it.

AS A BLOCK
Used in the Blocks environment, Seaboard takes centre stage, with the other Blocks clipping to it to all sides, top and bottom. It is three Lightwaves wide and a Lightwave plus a Live or Loop Block high, so they all fit together perfectly well, design-wise, and it really is something to behold when it's all connected and running. You can use the Seaboard to 'play' Noise and record riffs

You do have to make a choice here, though. As I was experimenting with using Seaboard Block as a controller and then as part of the Bluetooth Blocks environment, it would either do one or the other. So when Noise was booted up on my iPhone, for example, it would stop Seaboard Block from acting as a MIDI controller. I couldn't then trigger both Blocks and my soft synths at the same time – just one or the other (this is probably asking a bit much and does read back as a very first-world problem, on reflection!).

SO WHERE ARE WE?
I've possibly tried to do too much elsewhere with this review as well, by considering all the possibilities of Seaboard Block and possibly muddying the water a little. I know that ROLI simply wants people to make music with Noise and Equator on the move, simple as. But actually, I love

Seaboard Block more as a great quality controller and something to maximise my use of the excellent Equator synth. It sits well on my desktop and is a brilliant interface between me and my DAW. As part of Blocks, I'm not sure you'd absolutely need it if you are a 'Block head' music maker – you can make do with the Lightpad Block for playing and recording. It does, however, make entering that Block world easier if you're a traditional keyboard user like me.

So I'm perhaps more 'Seaboard' than 'Block' – more greying stubble than well-groomed facial hair – but I do like Seaboard Block a lot. It's solid, it's cheap, it brings those extra dimensions of touch, and can be a great central component of the Blocks DAW control setup. And with more developers going MPE – adding control functionality to their soft instruments which requires the extra dimensions to access them – this is easily the best way into that world of sonic manipulation. **MT**

MT VERDICT 9/10

+ The cheapest way to enter the world of 5D touch control yet
+ Very solid build
+ Great free Equator sounds
+ Good modular fit with Blocks
+ Makes the world of Blocks more accessible to an old timer like me
+ DAW control options are, again, the most exciting

– Not convinced of mobile need within the Blocks environment

Seaboard Blocks is a great and affordable way into extra dimensions of playing and sonic manipulation. Love the feel, the sounds you can get – and that price.

Alternatives

ROLI
Seaboard RISE 25
£699
In order to get that Seaboard Block keyboard action the only real alternative is another Seaboard. They come in three sizes but the most compact is the 25 and for the extra cash you'll get a full sized keywave bed. www.roli.com

XKEITH MCMILLEN
K-Board Pro 4 $599
This beaut was announced as a Kickstarter product a while ago but the website is now taking preorders. The advantage here is that you get all of the MPE action but with a more traditional keyboard to keep puriststs happy. keithmcmillen.com

HD 200 PRO

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www.sennheiser.com/hd-200-pro

SENNHEISER

MODEAUDIO
Shared Tomorrow

Price £18
Contact Modeaudio
modeaudio.com

Shared Tomorrow is a new pack from ModeAudio that contains 611MB of hazy, analogue loops, with a nod towards 80s retro and the occasionally apocalyptic, effects-treated vintage analogue-gear inspired sounds of Boards Of Canada. The heavily saturated drums are a mix of drum machines and more live-sounding percussion, and are chunky and solid enough. There are also some warm and resonant analogue basslines, dreamy pads, and shimmering, metallic guitars that are drenched in vintage-sounding reverb and FX. Sci-fi fans can rejoice, as the largest folder contains some excellent *Blade Runner*-esque synth riffs that could be used to build the foundation of a track. To round things off, there are also 68 crunchy drum hits, 109 MIDI files, and tails samples for all of the musical loops.

Although nine times out of ten, the expertly used saturation adds a lovely, lo-fi feel to the riffs and beats, its application occasionally feels a little too heavy handed. **MT**

Key features
- Analogue downtempo loops
- 160 loops, 74 tail samples, 68 drum hits
- 109 MIDI Files
- Acid WAV, REX2, ReFill or Ableton formats
- 20 Dr. Octo Rex Patches for Reason, 12 Ableton Live projects

MT VERDICT 8/10

A thoughtful and beautiful-sounding pack that somehow manages to feel both nostalgic and futuristic.

SAMPLE MAGIC
Festival Pop

Price £34
(folders available separately)
Contact Sample Magic
www.samplemagic.com

Festival Pop fuses elements of future bass, trap and electronica in a pristine 2GB collection that includes tropical beats, funky synth basses, pitch vocal leads, and mainroom FX. You'll find folders of tight, drum loops, and layered musical ideas, and a varied collection of drum hits, with 10 accompanying sampler instruments. The bulk of the pack however, comes in the form of nine extended Construction Kits with individual parts, wet and dry versions, MIDI files, Serum presets and even some suggested insert-chain screenshots and FX presets, although these are a little confusing when taken out of context. You also get 40 Serum presets, 9 Cubase projects for each kit, and 10 multisampled instruments for Ableton Live, plus a couple of short sound-design tutorial PDFs with audio examples. Although we found the sound to be a little too glossy, digital and brittle at times, the accompanying writing and programming are both excellent. **MT**

Key features
- Future bass, trap and electronica at 100bpm
- 2GB of content, 9 Construction Kits
- 809 24-bit loops and hits, 40 Serum presets
- 10 patches for Maschine 2, Battery 4, Kong, EXS24, Ableton
- 9 Cubase projects, 10 Ableton instruments

MT VERDICT 8/10

You'll need Serum to get the most out of this pack, but it's a well-written collection of crispy electronic-pop loops and sounds.

LOOPMASTERS
Jazz Crates

Price £24.95
Contact Loopmasters
info@loopmasters.com

Lack Of Afro Presents Jazz Crates is a new collection of classic hard-bop samples with a modern, soul-jazz slant. Performed by acclaimed band The Jazz Defenders, inspired by Blue Note Records and recorded and engineered by Rudy Van Gelder, using high-end vintage kit, the pack contains 869MB-worth of 24-bit audio across 240 loops. What you end up with is essentially six tracks, all of which have been chopped into a mix of sections and shorter loops, with live drums, upright piano, Fender Rhodes, tenor sax, horns and upright bass parts to choose from.

As this is all taken from an authentic live performance, there's mic bleed on many of the loops, but this actually helps add to the vibe, giving the audio a sampled-from-record sound. That said, the layout and the mixture of single parts together with mixed, combi loops is a little confusing at times. Overall, though, the exceptional extended performances could make this a very useful tool for anyone looking to create more authentic-sounding jazz tracks. **MT**

Key features
- 6 authentic jazz tracks
- Performed by The Jazz Defenders
- Live drums, piano, Rhodes, sax, bass and horns
- 240 loops in WAV and REX or Apple Loops and REX
- 95 to 136bpm

MT VERDICT 9/10

Inconsistent layout aside, these are expertly played and captured, authentic jazz performances, ready to use and chop into your tracks.

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How to Produce Great Pop Records: Deconstructing The Tune *Red* With Paul Whalley, to give this course its full title, sees the songwriter, producer and instrumentalist dissect a heavily layered and pro-sounding pop mix, with a combination of shorter concept videos and longer, in-depth chapters breaking down each part of the mix. The main focus is on the writing, arrangement, hooks, and discussions on why each part was processed in a particular way, with excellent chapters on vocal processing and mastering. Although Pro Tools and an array of third-party plug-ins are used, the techniques shown are easily transferable. You can also submit your own track to Whalley for feedback. Our only minor gripe is that each chapter is bookended by the same 10-second snippet of the track. **MT**

Key features
- Pop-track deconstruction
- 22 Chapters, 1 hour 41 mins
- Arrangement, hooks, mixing and mastering
- Stems available for download
- Presented by Paul Whalley

MT VERDICT 8/10

A well-rounded course with an array of useful tips on how to structure and process a complex pop mix.

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SIX OF THE BEST
Beat Makers

We round up some of the best products recently reviewed at *MusicTech*. It's time for the best **beat makers** in hardware and software, to provide your every rhythmic desire…

WAVE ALCHEMY
Revolution £149

Contact **Wave Alchemy** | www.wavealchemy.com

BEST BEATS PER BUCK

You want beats? You've come to the right place, as Wave Alchemy's Revolution packs 41,000 of them into Revolution. It's a Kontakt instrument featuring 14 iconic drum machines including the TR-909, 808, 606, 707, CR-78, LinnDrum, Drumtraks, Drumulator, Oberheim DX and more. Alongside loading up an entire machine into the 14 drum voices, you can also mix and match sounds. Reviewer Alex Holmes said: "You may wonder if you need more drum-machine samples, but the beauty here lies in how well the analogue depth of the machines has been captured."

WE SAID *"If you like classic electronic drum sounds, then Revolution is the ultimate instrument."*

AKAI
MPC Live £999

Contact **Akai** | www.akaipro.com, www.inmusicbrands.com

People rave about the MPC for beat making and the MPC Live is very much an MPC, albeit one that is all grown up. In fact, the Live takes whole new strides into standalone song production, featuring a whole lot more than just beats. Martin Delaney was certainly impressed: "The MPC Live brings the whole package – the pads, the display, the sampling, audio tracks and clip launching, elevating it above the competition in terms of what can realistically be achieved with a standalone box. If you want deep hardware sampling, sequencing, and – well, a hardware DAW, which is what it is – the MPC Live is currently the best option.

WE SAID *"The standalone MPC is back."*

BEST HARDWARE DAW

BEST ANALOGUE

ARTURIA
Drum Brute £380

Contact **Source Distribution** www.arturia.com

For just £380, DrumBrute is a full analogue drum machine with 17 percussion instruments, so is not only great value, but is also the only proper out-and-out analogue drum machine in this round up. "The most important thing, of course, is how the DrumBrute sounds in operation and overall, it sounds warm, snappy and certainly as 'analogue' as we hoped," said reviewer Bill Francis. "While some of the sounds the DrumBrute offers, namely the kicks, won't suit every genre of electronic music, it is very hard to criticise a fully-analogue drum machine with 17 sounds that costs less than £400."

WE SAID *"The DrumBrute is a solid unit which provides excellent value for money. It offers a great introduction to the world of drum machines for producers on a budget, but at the same time could be a great addition to a more established electronic musician's live or studio setup."*

ROLAND
Aira TR-8 £439

Contact **Gear4Music** | www.gear4music.com

Roland's Aira series recaptured those classic sounds of yesteryear, with the TR-8 emulating the legendary TR-808 and 909 perfectly. The TR-8 is a great piece of kit to get hands-on with, combining retro sounds with a modern range of control. and the lights… don't get us started on how awesome they are!

WE SAID *"Rock-solid build, neat scatter effects and easy to use. The TR-8 is both a great-sounding and great-looking drum machine."*

BEST STYLE

BEST ANALOGUE MINI

TEENAGE ENGINEERING
PO-32 £85 + $99 FOR THE SOFTWARE

Contact **Sound Technology** | www.soundtech.co.uk

One of the great beat partnerships, PO-32 combines Teenage Engineering's calculator-style beat making with Sonic Charge's Microtonic software, from which you can upload samples into the TE unit. This means you can make beats on the move or make them in your studio on your computer, and then combine the results quite brilliantly. Reviewer Andy Jones said: "You really can get the best of both worlds. PO-32 tonic has (re)opened my eyes to the fantastic world of Microtonic – and the fact that it works so well with the software brings two great beat making worlds together."

WE SAID *"PO-32 tonic has certainly added a tonic to our beats in both hardware and software. Separately, the hardware and software are superb. Put together, they are unbeatable."*

> "Separately, the hardware and software **are superb. Put together, they are unbeatable**"

PIONEER
Toraiz £1,279

Contact **Pioneer** | www.pioneerdj.com

Like the Akai MPC Live on p105 of this feature, the Toraiz SP-16 can do a hell of a lot more than beats… but that MPC-like interface has 'beat creating' written all over it. There's a seven-inch touchscreen, step sequencing, onboard effects and sample import from USB storage devices, plus a wonderful extra: an analogue filter from Dave Smith Instruments' Prophet-6 synthesiser. Martin Delaney loved it. "The Toraiz will attract confused Octatrack users, frustrated Akai fans and DJs who want to add samples to their set without bringing a computer. It's one of the most-fun hardware experiences I've had in ages, especially when combined with other hardware favourites, and the payoff is immediate. You could take delivery in the morning and gig with it in the evening. There's hardware sequencing and sampling, and an analogue filter, c'mon… I love it, how could you not?"

WE SAID *"It's easy to get to grips with and a huge amount of fun, creating patterns and arrangements, and launching samples and loops."*

BEST FILTERED BEATS

MT BEGINNER'S GUIDE

THE COMPLETE GUIDE TO
CONTROLLERS

PART 6

The *MusicTech* Beginner's Section is your definitive primer for music making. We've looked at the software and inbuilt instruments you can use to create music, but to get the best from both, you'll need a **hardware controller…**

As we've seen, software is at the centre of music production. The DAW (Digital Audio Workstation) is the central component, the engine if you like. Here, you take your sounds – either generated by the computer itself or recorded from the outside world – and you manipulate them, arrange them, turn them into a tune, and everyone is happy. Within the DAW, you have software instruments and effects to help you create, mix and edit your tune (so lots of software all round), but the ideal studio has a piece of hardware to control them all and it's called, guess what… a controller!

USING HARDWARE TO CONTROL SOFTWARE

The controller was born out of a fairly twisted and odd part of music-production history. As computers became ultra-quick at the turn of the century (or so it seemed

THE ROLE OF MIDI

Controllers use a music-technology digital language called MIDI (Musical Instrument Digital Interface) to access and control your software. MIDI records how long you press a key and at what pitch, plus what dials you are turning and assigns that info to your software instrument or DAW. All you really need to know about MIDI is that your controller will have a MIDI Out – either a five-pin DIN socket, or the connection is made via your USB socket – that connects to your computer interface, so that any tweaks and presses you make on your hardware will be picked up in your software.

back then), more and more music production was done 'in the box', ie, in a computer. Software instruments and effects were born and it became something of a dream to run everything in this new 'virtual studio'. That dream was realised and today, you can literally run everything that used to be run in a hardware recording

As music software evolved, so controllers had to keep pace – *and the* grid controller *was born…*

studio, in software. "Hurrah!", everyone said, and then realised that something as creative and tactile as music production was actually a bit rubbish when all done within the virtual four walls (six walls?) of your desktop or laptop.

Yes, many do happily produce within that environment, but many more also prefer something to play, twist, fade and turn that is hardware – and, perhaps more importantly, something that is not a mouse. So the irony is that the hardware controller was born to control the software that eliminated a lot of hardware in the first place. We are a fickle bunch, aren't we?

AND DON'T FORGET TOUCH

Another area of music making that has also exploded over recent years is the mobile, touch and iOS market. Those pesky tablets, phones and iPads are perfectly good central processors to run mobile DAWs, touch-screen synths and effects but, of course, many want to interact with these

devices with hardware – so some hardware controllers have been designed to control apps. Again, the irony is not lost on us: apps to help you go mobile now became weighed down with extra hardware, but the truth is that people use these 'mobile' devices just as much at home as they do on the bus or train, so perhaps extra hardware around your touch device is not as limiting in that production scenario as it may initially sound.

CONTROLLER TYPES

So, we've seen a new market for controllers emerge over the last couple of decades, but what shape and form do they take? The most common is the keyboard controller, a standard piano-type affair that varies in size, number of octaves and certainly price. Keyboard controllers come in standard 25-, 49- and 61-note options. You can also find a rarer 88-note controller keyboard that might come with a 'proper' weighted keyboard for experienced keyboard players, although the notes on smaller models are usually pretty good for playing, too.

The keyboard controller has actually been with us for longer than most other hardware controllers have been, and was born in the late 80s, designed then as a pure MIDI (Musical Instrument Digital Interface – the communication standard for digital music) controller to play hardware synth modules. Nowadays, it still uses MIDI at its heart to play everything – from software synths on desktop machines to apps on iOS machines.

ADVANCE49

AKAI PROFESSIONAL

ANATOMY OF A CONTROLLER KEYBOARD

A SLIDERS
It's often true to say that any controller – knob, slider, button, etc – can be assigned to any task on a good controller. Yet some are best assigned to standard functions. Sliders like these, for example, will usually be assigned to virtual mixing.

B MAKE SURE YOU HAVE THESE!
No controller keyboard is complete without a pitch-bend and mod wheel. The first adjusts pitch and the second can be assigned to anything, depending on how you press the keys. Make sure you have octave up and down buttons, too.

C TRANSPORT BUTTONS
A decent controller – or at least one aimed at controlling your software DAW – should have Transport buttons that you can assign to the Play, Fast Forward, Record, and Rewind controls of your chosen software.

D LAUNCH-TYPE PADS
Some controllers include 'launch'-type pads which, as we say below, might be used either to launch clips in software like Ableton Live, or record drum beats with percussion software.

E KEYBOARD SIZE
Often, controller keyboards are released in 25-, 49- and 61-note sizes (this is a 25) to cater for all players. Sometimes, you might get an 88-note weighted version (as in Native Instruments' Komplete Kontrol) for professional players.

F 'F' FOR FUNCTION
Many keyboards come with buttons that you can assign to anything you want. So for example, you could set up a keyboard shortcut within your DAW that can be accessed with a quick tap of one of these.

G ADDING MORE CONTROL
If you think that eight controls – like the sliders on this keyboard – won't be enough for your needs, don't worry, as many keyboards come with Shift-style buttons to assign these to another eight tracks.

H INS AND OUTS – NO AUDIO!
All controllers use onboard MIDI connections to connect to your computer interface. There will be no audio connectors, as MIDI controllers make no noise (usually)!

Despite the image that their name conjures to mind, keyboard controllers don't usually just have those traditional black and white keys. Increasingly, they also come laden with other knobs, bells and whistles (okay, it's mainly just knobs), and the majority include rotaries that let you turn virtual knobs on screen (the volume level of a virtual instrument, or the frequency dial of a soft synth, for example); or faders that let you push values up and down, used most often to set the levels in your onscreen virtual mixer. There may also be knobs which you can assign to keyboard commands or use to launch samples – see below.

Many standalone hardware controllers just feature these knobs and faders – minus the keyboard – the thinking being that not everyone will need the keyboard part, and that these can therefore be made smaller to be used next to a computer keyboard without taking up too much valuable desk space in your studio.

THEN THE GRID WAS BORN

As music software developed and evolved, so the hardware controller has had to keep pace. More loop-based software, such as FL Studio and Ableton Live, demanded a different type of controller, so the grid-based hardware controller was born. Often an eight-by-eight grid of buttons or pads, this type of controller is ideal for triggering the clips in Ableton Live. These actually take a lot of their design ethos from early Akai MPC and Roland TR drum machines, which used a grid-style hardware sequencer to program grooves and beats.

These grid or pad controllers can also be used to create beats and melodies from all sorts of other software; not just loop-based DAWs, but software drum machines and groove boxes. The ultimate grid-based controller – something like Ableton Push (see over the page for a detailed overview) – is designed to do it all. It can control the DAW, create beats and

melodies and even becomes a performance attraction live, becoming something of an instrument in itself.

The grid controller has also evolved in other ways as well – by way of the MPC and the bog-standard MIDI controller – to be, in some cases, a fully functional hardware melody maker that doesn't require a computer. All of the sonic music-making stuff is built into machines like Novation's Circuit or Akai's MPC Live to make standalone music makers, but we'll save those machines for another day, as they'll likely muddy the pure 'control' water.

THE CIRCLE IS KOMPLETE

'Integration' is the key word now and is likely to be the future of control. The hardware controller has developed so much that a few years ago, it became all about controllers being more independent from the computer, all about looking less at what is on the computer screen – as all of

ANATOMY OF A GRID CONTROLLER

A **INPUT NOTES**
We're looking at perhaps the ultimate grid controller for Ableton Live: Push 2. With this, you use a 4x4 section of the grid to input and record beats, with different sounds assigned to each pad.

B **STEP SEQUENCER**
Or you can input beats, step by step, with this sequencer by simply selecting your sound and placing it over these 32 steps.

C **DOUBLES AS A KEYBOARD**
Grid controllers like Push allow you to input notes by way of the pads, although Push has lots of scaling options to do this.

D **ROTARIES AND FUNCTION BUTTONS**
On any decent controller, you will get these and they will be assignable to different parameters and hot-key presses.

E **TRANSPORT CONTROLS**
Every controller, whether grid or keyboard, will have transport controls to stop and start your sequencer/DAW.

F **TOUCH STRIP**
As with keyboards, look out for faders on your grid controllers – although Push features a touch strip that can be assigned to just about anything.

G **SCREEN**
Controllers are progressively featuring better screens, in this case to edit audio… although all of the actual processing is usually done in your computer.

H **LIVE-SPECIFIC CONTROLS**
Many grid controllers like this are used specifically for Ableton Live, so have very specific functions for that software.

the information you need is now given to you by way of your controller's screen. So hardware like Native Instruments' Komplete Kontrol S Series and Maschine, and Akai's Advance Series convey a lot more about what the computer – still at the heart of the studio setup, but more invisible – is doing. Native Instruments' Kontrol series even goes as far as replicating the different-colour piano keys – as used by its Komplete Ultimate software and other Kontakt instruments – in hardware, by lighting up the individual hardware notes in a technicolour array.

In recent years, the controller has evolved in other directions. So you get more performance-orientated devices that can be worked into a live performance, but few have taken off in a big way. The future of control possibly lies in virtual reality:

some kind of haptic, sensory *Matrix*-style affair where you're pressing thin air while seeing your virtual studio inside a plastic hat. We're not completely sold, as people still like to actually touch stuff – which is why

The **ultimate grid controller** can do it all: **control the DAW, create beats and melodies** and become an instrument in itself

hardware control is with us today – so we'll probably see even more blurring between the software you use at the heart of your studio and the hardware you use to interface with it, as the manufacturers of controllers strive for ultimate integration.

We have a bumper selection of controllers over the following pages and they come in many shapes and forms, but don't worry, as we've tried to make it as simple as possible. There are still two main types: grid and keyboard. Most connect up to your computer via USB and use the MIDI standard and will play right out of the box (although to be used with specific DAW features, you may need to load up templates – see the step-by-step guides).

A quick note about mobile. Some manufacturers have designed their devices to be as small as possible to be used with iOS, but you may need to get a Camera Connection kit – so do check when buying whether one is included. Happy controlling! **MT**
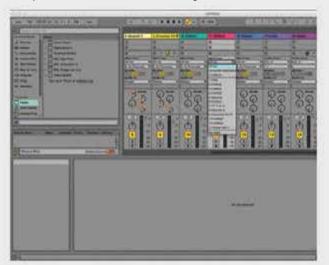
TUTORIAL SETTING UP CONTROLLERS IN YOUR DAW

01 Most keyboard controllers will play notes on your software instruments out of the box, but you may have to use a template to get them working with specific features. Here's a Nektar one in Logic.

02 In some instances, you might want to go deeper or simply change controls assigned to knobs and sliders – in which case, your DAW will have options. Logic's looks complex, but is very thorough.
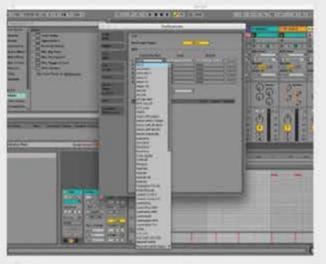
03 In some DAWs, you'll want to set up individual channels to external controllers, which is pretty easy. Here's a MIDI channel in Live. Simply click the MIDI input tab and select Configure.

04 That handily takes you straight to the Preferences, from where you can select a template of the latest controllers from a drop-down menu. Easy!

05 In Reason, you can also select from templates that come with the software. Select Preferences>Control Surface>Add and a drop-down menu appears with controller manufacturer names.

06 You then select the individual controller within your chosen manufacturer and an icon comes up to represent, in this case, a very cool-looking Keith McMillen QuNeo!

BUYER'S GUIDE

We couldn't list every controller, but we've extended the Buyer's Guide to cover pretty much everything we've reviewed over the last four years that's still available…

BUDGET

AKAI APC KEY 25

Price **£69**

This small and incredibly cheap keyboard manages to cram a hell of a lot of controls into its tiny footprint. There's a small keyboard, eight rotaries and loads of launch-pad buttons for Ableton Live.

WE SAY *"A lot of people who use a Live controller will also have a MIDI keyboard connected, so with the Key 25, you're killing two birds with one stone. Even though the keys are small, they're still perfectly fine for synth melodies, basslines and beats."*

IK MULTIMEDIA IRIG KEYS MINI

Price **£69**

Behold, IK's mini-key controller. You thought the 37 Pro USB was small…

WE SAY *"We had it triggering Gadget and Arturia's iMini in no time. And it's surprising how much we actually used it – as good as the iPad is at playing music, sometimes you do want the feedback from a proper keyboard, while playing it. While this is obviously not full sized and a little too plastic-y, it does a reasonable job."*

IK MULTIMEDIA IRIG 37 PRO USB

Price **£78**

A mini keyboard with maxi keys and probably the best playing you'll get on a small keyboard. There are few other controls, though.

WE SAY *"The keyboard isn't top quality, but very playable. It's good for the money and better than some models costing a lot more, or with smaller keys. 'Players' may be willing to forego mobile and just go big."*

LEAP MOTION CONTROLLER

Price **£78**

This hand-held motion controller can detect hand movements, tilting of your wrist, finger movements and more. It plugs in via USB and by way of an app like Geco MIDI ($9.99), enables you to set a custom MIDI CC output.

WE SAY *"Hands-free, multi-gestural control adding expression and something visually stimulating for any studio or live setup."*

NOVATION LAUNCH CONTROL

Price **£79**

A USB MIDI controller with 16 rotaries and eight launch pads and little else, but it does the job and you can pick it up for less than 50 quid in some stores.

WE SAY *"We found it to be a very useful addition – it will be the primary parameter and studio workflow controlling mechanism and it also works a treat with Ableton Live."*

NOVATION LAUNCHPAD MINI

Price **£79**

Designed, like the Launchkey Mini, to also work with Novation's Launch app, you'll need an optional extra Camera Connection Kit, but again, this is a very well featured controller for the price.

WE SAY *"Overall, our experience was a good one. It's remarkably simple to use and undeniably fun, practical and intuitive, with plenty of options to satisfy your creativity. A wickedly fun mobile controller."*

ARTURIA MINILAB MKII

Price **£89**

Another tiny keyboard that manages to pack a lot in for the asking price.

WE SAY *"With the Analog Lab Lite software, this is very usable. The build quality is not weapons-grade, but it's solid enough. Plus, it feels better made than the Mk I, and a really great purchase for anyone lacking space or wanting to dip their toe in the world of DAWs, plug-ins and a matching hardware keyboard."*

ARTURIA BEATSTEP

Price **£90**

This cut-down version of the previous controller will control and sequence pretty much anything you throw at it: analogue or digital.

WE SAY *"An excellent little MIDI controller. For triggering in software it's intuitive and fun to use, and it also works as a MIDI hardware trigger and sequencer, via its more old-school outputs. At this price, BeatStep is a great choice for anyone working with MIDI-triggered instruments, be they in hardware or software form."*

BUYER'S GUIDE Budget continued…

NOVATION LAUNCHKEY MINI

Price £79

Fewer rotaries than Novation's Launch Control, but twice the pads (which change colour to match those represented in the Launchkey app) and an added mini keyboard make this an attractive controller.

WE SAY *"It is a superb creative tool, immense fun to play, offering a huge range of ideas with little physical space taken up in-studio and no mains powering required – all in all, one of the finest mobile instruments money can buy."*

ALESIS VI RANGE

Price £99 to £219

Another range of controllers with three models: an entry level, compact 25-note; then a midrange 49-key and finally, a players' 61-note. All the keyboards in the range feature velocity-sensitive, full-sized 'square front' keys. You also get four rotaries; eight drum pads and four buttons, all of which are assignable.

WE SAY *"A great entry-level range, ideal for beginners or those who want a secondary mobile studio."*

MIDRANGE

ARTURIA KEYSTEP

Price £105

Keyboards don't come much more compact; and KeyStep even manages to cram in a few extra controllers in, too.

WE SAY *"The huge connectivity, coupled with the sequencer/ arpeggiator, makes KeyStep stand out. It feels weighty, but the keys don't inspire quality-confidence; however, this is a MIDI controller for under £100, after all. The Arturia KeyStep is almost in the area of an impulse buy, to place right next to my Eurorack when I need a quick arpeggiator fix. A bit of a bargain."*

KORG SQ-1

Price £106

It might not actually be a controller in name – it's more an analogue and MIDI sequencer – but we think there's enough going on with the SQ-1 to include it as a controller… simply because you can connect to so much – digital, analogue, app, you name it.

WE SAY *"SQ-1 is not just a controller for the MS-20M, although it does make a great partner. Use it with your soft synths, or your hard synths, but make sure you use it."*

IK MULTIMEDIA IRIG PADS

Price £119

iRig Pads aims to be more compact and portable than most and is specifically aimed at the iPad, iPhone and iPod Touch markets, plus laptop Mac and PC owners.

WE SAY *"iRig Pads is a very flexible device as well as being highly portable (its depth is particularly and notably thin). It's a compact, sturdy and portable unit, which makes a useful, tactile addition to your i-based studio."*

KORG TACTILE

Price £119 to £280

Available in 24- or 49-key models, Tactile has a range of great launch controls, rotaries and sliders and works well with many DAWs out of the box. There are also Triton versions, with features from that great synth range.

WE SAY *"It has great real-time options and superb DAW integration, and the software bundle includes Korg's M1 Le software, EZdrummer Lite, Lounge Lizard Session and more. Taktile is a great package and performance tool – much more than a typical keyboard controller."*

NEKTAR LX49+

Price £125

The LX49+ is the latest in Nektar's great range of controllers that aims to make DAW control as simple as possible. It features nine 30mm sliders, nine assignable buttons, six dedicated transport buttons, and eight velocity-sensitive pads with four-LED colour options.

WE SAY *"You can set up the LX+ exactly how you want. This is a surprisingly deep controller for the price, with instant integration that can improve your workflow without wrappers or additional plug-ins getting in the way."*

ROLI BLOCKS

Price Lightpad £169, Loop £69; Live £69

ROLI's Blocks system isn't strictly a controller – it's more a system of touch-sensitive blocks that join together to make many and varied music-making systems. The real beauty is that you can also configure them to make the most beautiful and futuristic control system you've ever seen, too.

WE SAY *"Control over software is where it gets interesting. To have the multitouch expression while playing your instruments in your DAW can add a level of control you won't get with any other MIDI controllers."*

BUYER'S GUIDE Midrange continued...

NOVATION LAUNCHPAD

Price **£174**

"If you use Ableton Live," says Novation, "you need a Launchpad. Its 8x8 grid has become ubiquitous with the evolution of electronic music, letting you launch clips, play drum racks and control your mixer." Developed with Ableton, it was one of the first controllers to properly interact with Live.

WE SAY "*Launching Live clips with hardware has become an artform, with everyone joining the party, but Launchpad is slick and illuminating.*"

KEITH MCMILLEN QUNEO

Price **£200**

QuNeo is a fantastic-looking controller at a great price. It features a 4×4 pad array, sliders, and rotary control, and 'Smart Fabric sensors' which sense pressure, position, and velocity.

WE SAY "*With the QuNeo, it took us a while to start getting our heads around its huge amount of MIDI output. There's a new level of control available through this device which we feel is the start of a new era in digital music control.*"

NEKTAR PANORAMA P1

Price **£210**

Another controller that's dedicated to controlling DAWs straight out of the box and with ease. Nektar has now added pretty much every big name to its list of compatible software slaves.

WE SAY "*The P1 works in two modes: as an instrument and as a mixer, each set up as a separate device. Once you've figured all this out, it's fine – the Panorama P1 is a great controller with a good depth of features and programmability.*"

AKAI ADVANCE SERIES

Price **£259 to £449**

It's one of the ranges of controllers (three sizes in this case) that attempts to get you using your computer screen less so you can concentrate on the playing and composing, and with its VIP software, it largely succeeds.

WE SAY "*Overall, the bundle offers a very successful mix and integration of both software and hardware, and one that will have you turning from your computer to your hardware and, what's more, using your ears to mix rather than your eyes.*"

ARTURIA BEATSTEP PRO

Price **£179**

This is a controller, performance sequencer and composing tool in a single box. Its aim is to give you control over your instruments, and has an expansive selection of outputs, including several CVs for triggering and controlling modular synths.

WE SAY "*Arturia has struck the right balance of features, build and price. It proves controllers can be fun and modular synths needn't be the preserve of hardcore synthesis nuts.*"

IK MULTIMEDIA IRIG KEYS I/O

Price **£200 to £300**

This keyboard from IK is available in 25- or 49-key versions, with full-size keys and a smooth, velocity-sensitive, synth-action keyboard.

WE SAY "*Boasting great portability, the iRig Keys I/O works with all iOS devices with a lightning port, so you can create from the word go. There's also over $/€550 worth of IK software and apps, including the SampleTank 3 sound and groove workstation with over 5,000 sounds.*"

NOVATION LAUNCHPAD PRO

Price **£245**

Launchpad Pro is an updated Launchpad (although the original is still available on Novation's website – hence the inclusion here). The Pro is a tad larger than the regular Launchpad, but it's not hefty. Extras include velocity-sensitive full-colour RGB pads, hardware MIDI, mains power and an array of edit buttons.

WE SAY "*Pro is a flexible, expressive, interface, for your clips, instruments, and just about everything else.*"

AKAI APC40 MK2

Price **£295**

Another controller with launch pad buttons for Ableton Live, the APC40Mk2 certainly packs the controls and options into a sturdy but still compact footprint. It also addresses a few issues from the first incarnation of the machine.

WE SAY "*We recommend all Akai APC40 MkI users to check the MkII out. It has a slimmer profile, slick crossgrading, and great colour matching to Ableton Live. It is a good example of a follow-up outdoing the original in many ways, and answers most MkI user's gripes.*"

BUYER'S GUIDE

HIGH END

NATIVE INSTRUMENTS KOMPLETE KONTROL S SERIES

Price **£299 to £539**

The Komplete Kontrol S-Series set a new precedent of software and hardware integration, mapping loads of screen functions onto the keyboard.

WE SAY *"We can finally let the computer do what it should be doing – computing! – and we can finally get on with what we should be doing: making music and playing music."*

M-AUDIO CTRL49

Price **£339**

Another new controller keyboard, this time from M-Audio. With a large colour screen and VIP software, it's another keyboard trying to blur the lines between hardware and software and trying to help you move away from your computer screen to play and compose instead.

WE SAY *"VIP is a great feature that really does help you mix with your ears rather than eyes as you stare at your screen."*

ICON QCON PRO

Price **£399**

The QCon Pro is at the higher end of Icon's product range. A comprehensive DAW controller, it has many features that not so long ago would only have been found on a much more expensive unit. It's also built like a tank.

WE SAY *"The ability to control a surprisingly wide range of DAW functions remotely is really useful, the faders feel accurate and motorisation is a real bonus. It's a USB DAW MIDI controller that works well and won't blind you with science – a good way to get hands-on with your projects."*

FADERFOX PC44

Price **€549**

A USB MIDI controller with 64 small and four large knobs, a large push-encoder, 11 buttons, and a small LCD display.

WE SAY *"The PC44 is just a big surface with a ton of knobs – that's fine by me. I can imagine keeping it on my desk, using it for music and video performances with software-only as well as hybrid hardware-software rigs. It doesn't have the dancefloor pretty-light vibe of pad-based controllers, but that's not what it's about."*

ABLETON PUSH

Price **£599**

Very much the daddy of controllers, not so much for its flexibility – it is for Ableton Live only – but for the way it integrates so seamlessly with that software. This is a practically essential purchase for Ableton users and it's almost an instrument in itself.

WE SAY *"This is a whole new, enjoyable experience with out-of-the-box functionality that nobody else can really match."*

KEITH MCMILLEN INSTRUMENTS K-MIX

Price **£639**

The first of two great units from Keith, the K-Mix is actually a standalone mixer, an interface, and a controller that works with Mac, Windows, iOS; and it has onboard effects to boot.

WE SAY *"The K-Mix is absolutely worth the money. Mobile or small-studio producers who are tight for space and need a lot of features, with great audio, should check it out."*

ROLI SEABOARD RISE RANGE

Price **£621 to £2,499**

The RISE concept throws the concept of the keyboard – and controller – into the air and rearranges the pieces into a completely new form. With three models, you have three futuristic controllers to shape your sound in new ways. The Seaboard Block is a smaller version to join the Blocks range above.

WE SAY *"For creating something unlike anything else out there, ROLI can only be applauded. RISE is solid, sleek, great value and sounds superb with the supplied Equator soft synth."*

NATIVE INSTRUMENTS KOMPLETE KONTROL S88

Price **£769**

We've separated the S88 from the rest of the Komplete Kontrol range, because it's a different proposition.

WE SAY *"It is pricey – a full £300 more than the 61 – but the keys will be attractive to 'proper' players. They are fully weighted and slightly heavy but far more responsive than the 61-note S Series."*

SYNTHESISERS

The part of the *MusicTech* Beginner's Guide where we choose a starter studio for a specific task or budget. This time, it's everything you'll need to **buy yourself some decent synths**…

HARDWARE

There's never been a better time to own a new hardware synth. Analogue or digital, we have great options for every budget…

Novation Peak
Price £1,250

WE SAY "*Excellent and varied sounds and effects and more than enough options to synthesise, create and modulate your own. Years of fun!*"

DSI OB-6
Price £2,500 (street)

WE SAY "*Expensive, but at every turn, it inspires new riffs and complete tunes and, when all is said and done, you can't ask for more than that.*"

Roland System-8
Price £1,239

WE SAY "*The System-8 is great to use and is a very powerful and well-equipped pro-level synthesiser.*"

Korg monologue
Price £299

WE SAY "*A cracking little mono monster and it'd be a bargain at twice the price.*"

SOFTWARE

We're talking plug-ins for Mac and PC – there are tons to choose from. Here are four we've recently reviewed and loved…

Softube modular
Price £69/$99

WE SAY "*Modular is a great investment if you want an inexpensive version of modular on the move.*"

Spectrasonics Omnisphere 2
Price £285

WE SAY "*It's hard to imagine anything delivering the sheer sonic excellence as Omnisphere 2 does. Essential.*"

KV331 Synthmaster
Price $129 to $379

WE SAY "*It really does an incredible amount and in a no-nonsense, almost calm way. Truly a master of synths.*"

Rob Papen Predator 2
Price £124 (upgrade from Predator 1 £49)

WE SAY "*The flexibility with Predator 2 must be applauded, and certainly for mere bang for buck, there's plenty on offer for everyone here.*"

IOS

There are plenty of synths for your iPad and iPhone. Here are four excellent examples…

BeepStreet Sunrizer
Price £7.99/$9.99

WE SAY "*Easy preset categories and a fine overall sound make this a modern classic among mobile synths.*"

Yonac Magellan
Price £10.99/$14.99

WE SAY "*One of the most fully featured and biggest-sounding synths out there. Quite superb.*"

Moog Model 15
Price $29.99

WE SAY "*Possibly the most involving synth app in our round-up – you'll need later iMachines to run it – but it's also the most true and real.*"

Korg Gadget
Price £19.99

WE SAY "*Probably the best music-making app on iOS. Amazing!*"

DAW

If you love synths, then make sure the DAW you buy is packed with them. Here are four that have plenty…

Reason
Price £49 to £289

WE SAY "*Now with the ability to run VSTs, Reason is perhaps the fullest synth DAW.*"

Korg Gadget
Price £19.99

WE SAY "*Want synths on an iPad? You've come to the right place.*"

Apple Logic
Price £199

WE SAY "*Logic comes packed with its own synths and now includes Alchemy, which is worth the asking price alone.*"

Ableton Live
Price €79 to €599

WE SAY "*Live is still the most instant cross-platform DAW on the market. Other DAW manufacturers should take note.*"

re6asons
NOT TO BUY MORE GEAR

Last time, we looked at six reasons to buy new gear for your studio. This time around, we're taking the opposite course of action and looking at six great reasons why you shouldn't upgrade, splash out and spend just for the sake of it…

We all know that a part of the appeal of music production – and one of the reasons this very magazine exists – is the allure of the technology that goes with it. It's the way that this technology eases your path to music glory, provides the sounds you need, or helps you attain a professional edge. Plus, of course, it also has something to do with how a room full of gleaming new hardware just looks so darned good. But the call of that technology siren can lead to depleted bank accounts, too many options and the divorce courts. Yes, we're as guilty as the next person when it comes to upgrading and have probably done it more than most, but in doing so, we've also learned from our costly upgrade mistakes and can bring you this definitive list of six reasons why you shouldn't do it. Do we practice what we preach? We're not answering that…

1 BECAUSE LESS IS MORE

As we have seen in *MusicTech* over recent issues, the likes of The Beatles and Pink Floyd created some of their greatest albums on 16-, eight- and even four-track setups. You probably have more recording power in your phone than they had back then. But did those limitations curtail them? No! Some would even argue – us included – that limitations spur our creativity on, because they force you to think in more tangential ways to come up with solutions. Less can, quite definitely, be more…

2 YOU CAN GET IT CHEAPER (OR FREE)

That new gizmo you're after. Is it really a bargain? Yes, that is an obvious question to ask (is it a good price and one worth paying?), but take it a couple of steps further. Can you, for example, get a cheaper version of what you are after in

software? Can you even get it in freeware? Is there a cheaper hardware clone of that vintage gear you're lusting after? Does the company making your classic gear target produce a better, newer and cheaper version – do you really need that expensive second-hand classic Jupiter-8 synth when a cheaper Roland System-8 will do the job? Music-production equipment, more than any other type, has newer software and hardware versions of classics, so tread the vintage route with care.

3 MAYBE IT DOES LESS THAN YOU THINK

We've all been there: your favourite studio hardware or software is being upgraded into a flashier Mk2 or version 2, or your computer is being upgraded to a new yearly model, so the temptation is there just to give in and go for this latest whizz-bang version. But look closely. Do those few MHz

of extra processor power, or that quite feeble amount of extra hard-drive space, really make sense for the extra outlay? and, oh look, they've taken some of the connections off, too, and loaded 20% on the asking price. Yes, some companies are perhaps exploiting their own fan-boy cultures for profit, so try not to get caught up in that upgrade cycle; be sure that you're shelling out on new versions for your own benefit, rather than out of habit.

4 YOU HAVEN'T EXPLORED WHAT YOU HAVE

Probably the most common occurrence in any field of technology is upgrading before fully exploring the existing options. The phenomenon is particularly prevalent in music-technology circles because hardware and software comes packed with so many features that you sometimes can't see the woodland options for the feature trees – you then take the easy path and don't really explore all of the sonic possibilities. It's a shame, as you might end up 'upgrading' to something similar to what you had before – you just didn't know you already had it…

5 BECAUSE LOOKS AREN'T EVERYTHING

Okay, we'll put our hands up on this, as we're as guilty as hell of getting excited about how good some studios look (just check out our many *Show Off Your Studio* features) and how cool some gear looks (*6 Ways To Make Your Studio Look Cool*, anyone?). That's because a great-looking studio environment aids creativity. However, try to think logically. Yes, that massive wall of modular gear looks 'the bollocks', but does it really do anything over and above what Softube's modular software does (and more to the point, can you even switch the damn thing on?!). So make sure what you're getting sounds as good as it looks. At least try. Oh, okay then…

6 BECAUSE IT'LL BE SUPERSEDED

Predicting the future of any kind of technology is stupid. We know, because we do it and, more often than not, we end up tangled up in Betamax tape for our trouble. It's not our fault, though, because music-production technology moves in such mysterious ways. Who, for example, could have predicted that, in the late 80s, when analogue synths were all done, dusty and dusted and no-one was ever going to give a CV/Gate about them ever again, that in 2017, they'd be back? But there are some horses you feel you shouldn't back, as for every analogue revival, there's a Misa Digital Kitara or airpiano. Or a strap on a keyboard. Whose idea was that?

NEXT TIME *6 Ways to avoid a terrible mix!*

VINTAGE KIT

REWIND

With Propellerhead's Reason DAW reaching version 10, it's time to honour the software that came before it, **ReBirth RB-338** – the first soft-synth emulation…

Words **Andy Jones**

I remember when I first played Propellerhead's ReBirth. Turning knobs on a computer screen and the sound changing in real time might sound like child's play now, but 20 years ago, it was a thing of wonder, a kind of dark magic. It was especially incredible as it made the sound of the TR-808 and TB-303, two iconic Roland dance beasts that everyone had tried to recreate in hardware, and here was something doing it… in software?

It's a good time to look back and honour ReBirth. Not only has Reason, the product that it arguably spawned, reached version 10, but ReBirth itself finally bit the dust earlier this year after Roland issued a statement saying that it infringed on the company's intellectual property rights. It would be hard to argue with that, as even Propellerhead Software call it "the first software synth emulation", and what it was obviously emulating was two Roland TB-303s, a Roland TR-808 and (later) a 909 drum machine. Those instruments are, of course, synonymous with dance music (still!) and Roland has been repackaging them with some aplomb in recent years. You can understand the stance, even though Roland had effectively turned a blind eye to ReBirth for much of its rather complicated lifetime…

BIRTH OF REBIRTH

Propellerhead Software started in 1994 with ReCycle, a slice 'n' dicer that made creating new beats from old a sizzle and one that created the REX file format still used to this day. The Props already had Reason in mind for their next product, but

were held back by computer power; so the slick and efficient ReBirth was born a couple of years later, then with just an 808 for beats. The 909 was added at v2 completing the Holy Trinity of acid house needs – and the software was a huge Mac and PC hit.

You could chain up to 32 patterns together of each instrument and have all four playing together for what would have

been complete tunes back in the halcyon days of acid. Not only that, but you could mod the software and change its design and drum samples, something the Props even encouraged.

As ReBirth had the claimed status as the first software emulation, it was not only incredibly successful, but paved the way for a million other virtual instruments, emulations or otherwise. It also sent a shockwave through the synth hardware industry, as many saw it as heralding the start of a very soft future – perhaps the end of hardware as we knew it. Of course, that synth hardware never really went away, but there were a few worried instrument makers at the time, let me tell you.

In 2005, Propellerhead Software announced it was discontinuing support for ReBirth, stating: "We're a small company with limited development resources and

we think it makes much more sense for everybody involved – even ReBirth users – that we concentrate our efforts on our more current products and on future projects." It also announced that it would give the software away for free, setting up a dedicated website to download it and many of the mods that were available for it.

That would have been the end of the story, but some bright spark at the

In June this year, ReBirth came to an end for a second time. It was a ReDeath, if you like

company realised how cool it would be to control ReBirth with touch technology – so in 2010, ReBirth for iOS was released. The iPhone version was discontinued in 2013, but the iPad version stayed on the iTunes store until 15 June this year, when Propellerhead removed it and ReBirth came to an end for a second time. A ReDeath, if you like. "Rather than refuting this claim," the Props said, "we have decided to honour our long-standing relationship with Roland Corporation."

If you ever used ReBirth back in the day, or are one of the lucky iPad owners, you'll know how much fun it really was and also how real it sounded compared to the originals. It was a landmark product in so many ways and you could even argue that it helped those classic Roland sounds live on in dance music. ReBirth, may you (re)rest in peace.

Abbey Road Studios

IN ASSOCIATION WITH

Abbey Road Studios

MusicTech
2018 CALENDAR

December 2017

MusicTech

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21 _MusicTech_ Issue 178 on sale UK	22	23	24
25 CHRISTMAS DAY	26 BOXING DAY	27	28	29	30	31

January

MusicTech

A small selection of vintage and
modern outboard at Abbey Road

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
1 UK Bank Holiday NEW YEAR'S DAY	2	3	4	5	6	7
8	9	10	11	12	13	14
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22	23	24	25 **NAMM** – Anaheim	26 **NAMM** – Anaheim	27 **NAMM** – Anaheim	28 **NAMM** – Anaheim
29	30	31				

MusicTech Issue 179
on sale UK
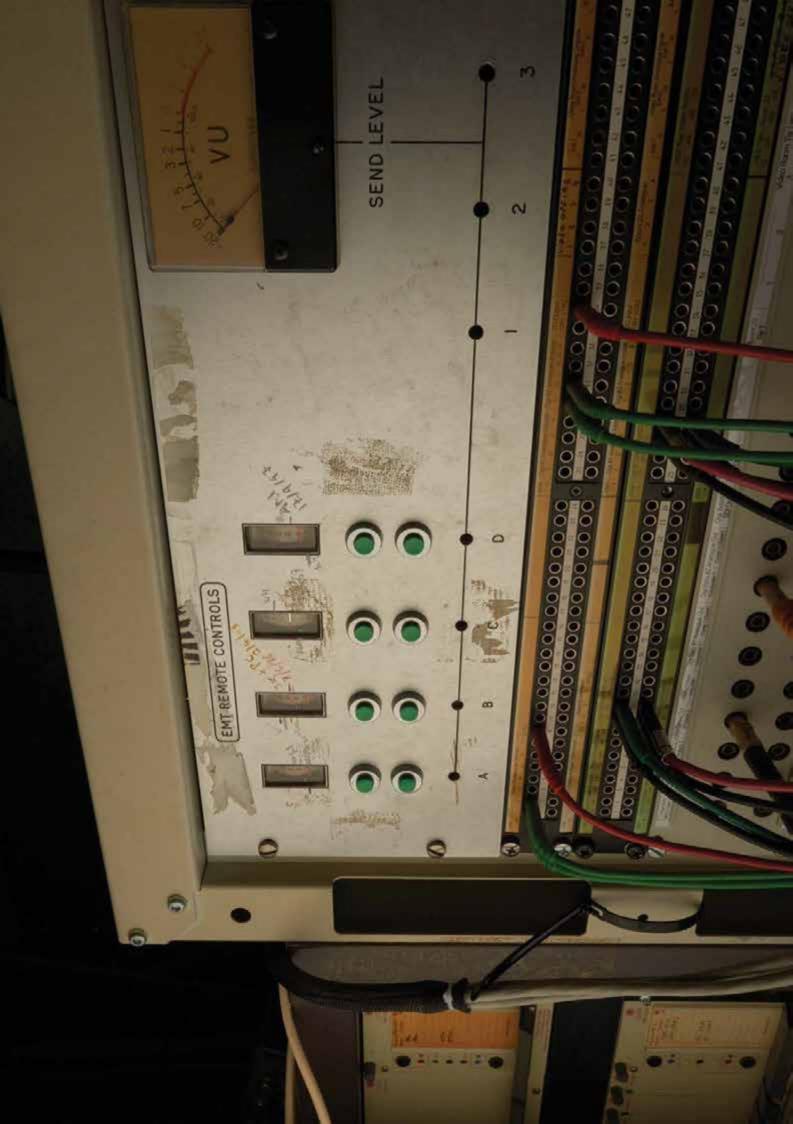
February

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12	13	14	15 *MusicTech* Issue 180 on sale UK	16	17	18
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EMT-REMOTE CONTROLS

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March
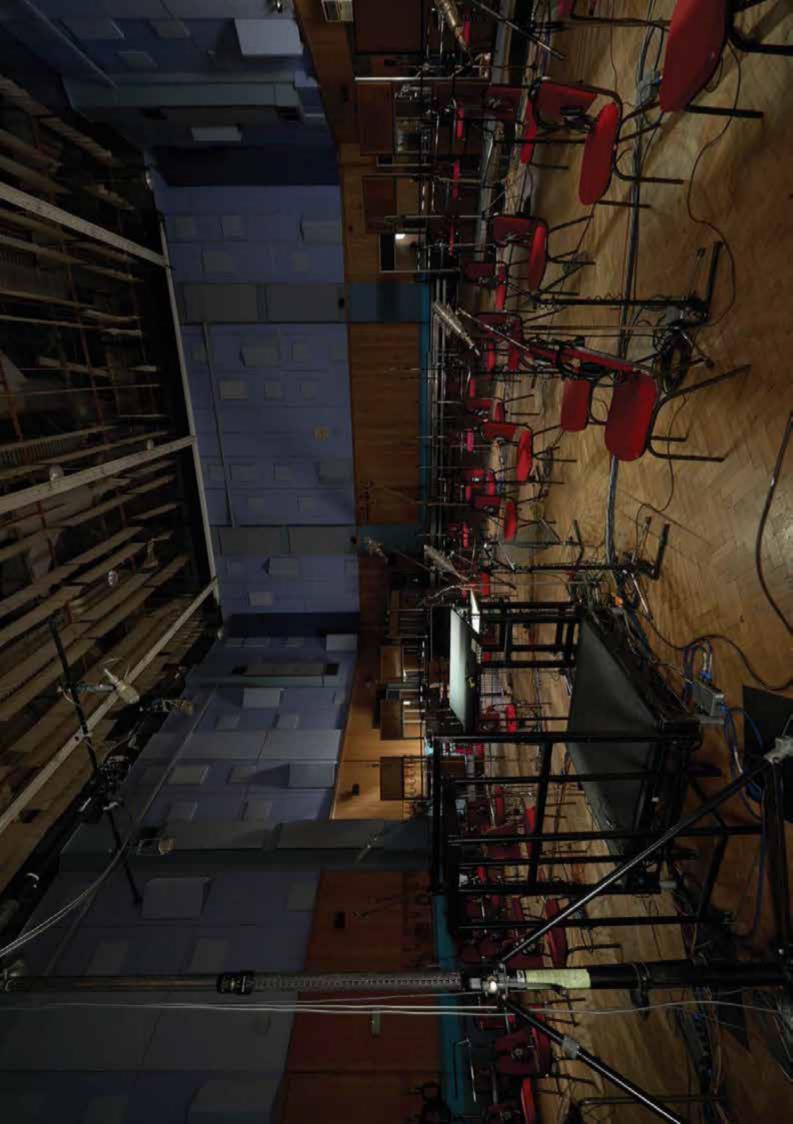
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12	13	14	15 *MusicTech* Issue 181 on sale UK	16	17	18
19	20	21	22	23	24	25 BRITISH SUMMER TIME BEGINS
26	27	28	29	30 UK Bank Holiday GOOD FRIDAY	31	

April

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
						1 EASTER DAY
2 UK Bank Holiday EASTER MONDAY	3	4	5 *MusicTech Focus 48* on sale UK	6	7	8
9	10	11 **MESSE** – Frankfurt	12 **MESSE** – Frankfurt	13 **MESSE** – Frankfurt	14 **MESSE** – Frankfurt	15
16	17	18	19 *MusicTech* Issue 182 on sale UK	20	21	22
23	24	25	26	27	28	29
30						

May

MusicTech

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
	1	2	3 **SUPERBOOTH** – Berlin	4 **SUPERBOOTH** – Berlin	5 **SUPERBOOTH** – Berlin	6
7 UK Bank Holiday MAY DAY	8	9	10	11	12	13
14	15	16	17 *MusicTech* Issue 183 on sale UK*	18	19	20
21	22	23	24	25	26	27
28 UK Bank Holiday SPRING HOLIDAY	29	30	31			

June

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21 *MusicTech* Issue 184 on sale UK	22	23	24
25	26	27	28	29	30	

July

MusicTech

The AMS Neve 88RS console in the
Control Room of Studio One

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
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23	24	25	26	27	28	29
30	31					

MusicTech Issue 185
on sale UK

August

MusicTech

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16 *MusicTech* Issue 186 on sale UK	17	18	19
20	21	22	23	24	25	26
27 UK Bank Holiday LATE SUMMER HOLIDAY	28	29	30	31		
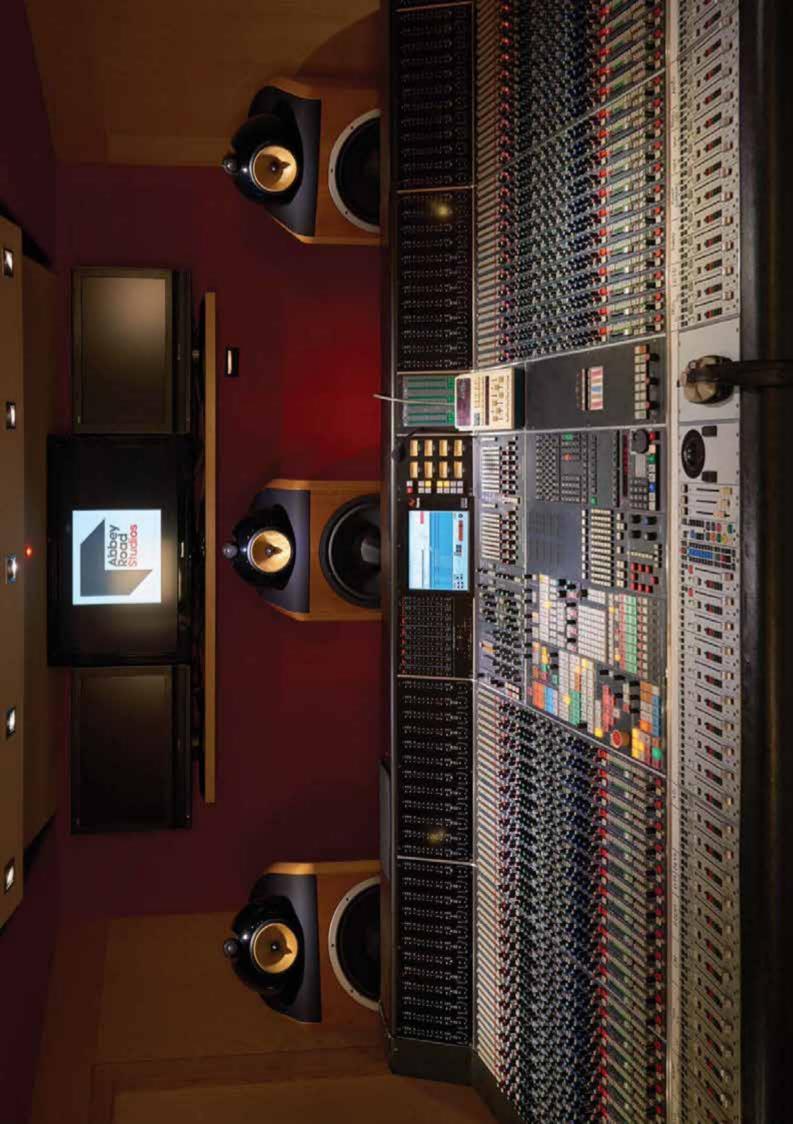
September

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17	18	19	20	21	22	23
24	25	26	27	28	29	30

MusicTech Issue 187
on sale UK

October

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18 *MusicTech* Issue 188 on sale UK	19	20	21
22	23	24	25	26	27	28 BRITISH SUMMER TIME ENDS
29	30	31				

November

MusicTech

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15 *MusicTech* Issue 189 on sale UK	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

December

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
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3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20 _MusicTech_ Issue 190 on sale UK	21	22	23
24	25 CHRISTMAS DAY	26 BOXING DAY	27	28	29	30
31						

April

September

March

August

February

July

December

January

June

November

December 2017

May

October